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UTILIZATION COMMITTEE
REPORT TO THE MINISTER
SEPTEMBER, 1985

SURPLUS

UTILIZATION OF MEDICAL SERVICES

Prepared by

Dr. D. G. Young

and the Utilization Committee

September 1985

COMMITTEE MEMBERS

Chairman - Donald G. Young, M.D.
Physician
Edmonton, Alberta

Francis M. Christie, M.D.
Physician
Lethbridge, Alberta

Robert C. Cooper, M.D.
Physician
Red Deer, Alberta

C. Bruce Hatfield, M.D.
Physician
Calgary, Alberta

Arthur V. Follett, M.D.
Senior Medical Consultant
Alberta Hospitals and Medical Care

Cecil A. MacKenzie
Assistant Deputy Minister
Health Care Insurance Division,
Alberta Hospitals and Medical Care

Joseph M. Shaver, C.M.A.
Director of Systems and Data Processing
Health Care Insurance Division,
Alberta Hospitals and Medical Care

Support Staff:

Lettice Tse, M.Sc.
Manager
Information Request Centre
Health Care Insurance Division,
Alberta Hospitals and Medical Care

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LEVEL 1: EXECUTIVE SUMMARY

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1.0 INTRODUCTION

By 1984 both government and the public became concerned about the increasing utilization of health care services. The issue of increasing demand for services when those services are funded from finite resources caused the Minister of Hospitals and Medical Care to take action.

To determine the impact of medical services on utilization, the Minister of Hospitals and Medical Care established the Utilization Committee in September of 1984. The committee membership included four members from the medical profession and three from the Department of Hospitals and Medical Care, Health Care Insurance Plan.

The terms of reference required that the committee identify factors contributing to the increased utilization of physician services and diagnostic services, per resident of Alberta, during the period 1979-80 to 1983-84 as reflected in billings by physicians to the AHCIP. The Committee report, requested for September of 1985, in addition to identifying the above factors, was to advise the Minister on steps government could take to reduce or restrain future growth in utilization of medical and diagnostic services.

Level 1 is an executive summary of major conclusions and recommendations.

Level 2 details the conclusions and recommendations with a discussion which attempts to give appropriate perspective.

Level 3 details the committee's studies and findings with references to its extensive data base.

2.0 FINDINGS FROM THE STUDY

2.1 The percentage increase in medical service costs over the study period was less than the percentage increase in total Departmental expenditures and the percentage increase in operating costs for acute care hospitals.

2.2 The abrupt increase in the rate of utilization of medical services which occurred in Alberta in 1982-83 was not a regional phenomenon. A similar abrupt increase occurred in all of Canada.

2.3 An increasing proportion of registrants using AHCIP as discrete patients occurred, particularly in 1982-83, contributing significantly to increased utilization.

2.4 Physician manpower growth during the period 1974 to 1982 barely kept up with population growth, the ratio of discrete patients to physicians being greater in 1983-84 than it was in 1974-75. The sudden cessation of population growth in 1982 will continue to lower this ratio as physicians who entered medical school six to ten years earlier come on stream.

2.5 Improved business practices, both in use of the Schedule of Medical Benefits and the adoption of improved management procedures have been undertaken by physicians, partially in response to the 0% Schedule of Medical Benefit increases since 1983.

2.6 Measurement of utilization using Schedule of Medical Benefit services is not an ideal system.

2.7 Lack of data for equivalent services generated in the hospital sector and other government supported laboratories makes precise measurement of medical service utilization impossible.

2.8 Shifts of similar services between hospitals, government funded laboratories and the AHCIP sector occurred which were not well documented and for which cost saving data was not available.

2.9 Hospital operation impacts significantly on utilization of AHCIP services. Many AHCIP services are carried out in hospitals and their utilization is affected by hospital bed closures, be they for construction, budgetary control, or as a result of strikes.

2.10 The growth rate in medical services was not considered inappropriate given the coming on stream of new technologies and expertise in diagnosis and treatment and the universal free access of patients to these services.

2.11 Rapid growth occurred in the areas of Minor Surgery, Consultation and diagnostic procedures such as ultrasound and respiratory function studies.

2.12 Frequently used high volume laboratory services, which account for the majority of Pathology services, grew at a rate equivalent to Office Visits, decreasing in their proportion of Pathology services over the five year period.

2.13 Low volume, expensive Pathology services, which represent newer diagnostic methods, increased their share of Pathology services. These include the rapid growth areas, in particular thyroid function studies, hematinic factor assays, therapeutic drug monitoring, hormone assays and electrolyte assays.

2.14 A significant contribution to AHCIP covered microbiologic services was made by the reduction in specimens handled by the Provincial Laboratory.

2.15 Improved access to offices and laboratories, often with extended hours of service, contributed to increasing utilization although the exact contribution cannot be measured.

2.16 The accelerated rate of increase in 1982-83 in utilization of medical services was contributed to by:

a) Increased numbers of discrete patients using AHCIP.
b) Hospital bed closures in 1981-82 for remedial construction and

the nurses' strike which resulted in a rebound in utilization in 1982-83.

c) Clustering of medical specialists entering practice in this year.
d) Improved use of the Schedule of Medical Benefits resulting from confrontations with government and the 0% payment increases.
e) Expansion of walk-in after hour clinics.
f) The addition of new benefit codes, in particular under the category Pathology, for procedures not previously billed.

2.17 The previously reported dramatic fall in House Visits was incorrect. When Schedule of Medical Benefit codes were correctly assigned there was only a slight fall in House Visits.

3.0 RECOMMENDATIONS FOR CONTROL

3.1 NONDIAGNOSTIC MEDICAL SERVICES

3.1.1 Minor surgical services, consultations and office counselling should be monitored closely with the development and feedback to the profession of guidelines for their utilization.

3.1.2 The impact of hospital operation, in particular bed closures on shifts in location of service performance should be monitored closely and cost savings in one sector compared to cost increases. The latter will assist in deciding whether services should be performed under hospital or AHCIP funding.

3.2 DIAGNOSTIC SERVICES

3.2.1 Revision of the Pathology section of the Schedule of Medical Benefits in cooperation with pathologists through the A.M.A is required.

3.2.2 Identification of rapid growth areas in Pathology services for members of the profession with the development of guidelines for utilization should be undertaken.

3.2.3 The respective roles of the Provincial Laboratory of Public Health and AHCIP funded laboratories in the provision of microbiologic services must be defined.

3.2.4 Shift of Pathology services from hospitals to AHCIP funded laboratories should be documented and cost savings evaluated when judging AHCIP cost increases.

3.2.5 Monitoring of other rapid growth diagnostic areas, including diagnostic ultrasound, respiratory function studies and endoscopies, with appropriate feedback to the profession of the extent of their growth, and consideration of the development of guidelines in their utilization should be carried out.

3.3 DATA

3.3.1 Utilization of similar medical services from AHCIP, the hospital sector, and other government funded laboratories should be available in a comparative format for appropriate assessment.

Attempts should be made to achieve comparability of medical services data with that gathered by other Canadian provinces and the federal government.

3.3.2 The Schedule of Medical Benefits should be reviewed, assuring it is appropriate both for payment of services and monitoring of utilization.

3.3.3 Indices of utilization should be established to be followed as a profile of utilization.

3.3.4 Current data should be provided to the profession, the government and the public in an easily readable, condensed format.

3.4 CONTINUED MONITORING

3.4.1 A working committee should be established with input from the Department, the A.M.A. and the College of Physicians and Surgeons, to continue the utilization review, providing summarized objective data. This committee should not be involved in fee negotiations.

3.4.2 Educational programs based on this summarized data should be implemented for both the profession through its professional bodies, and for the public in the hope that an understanding of the utilization of medical services and their costs will contribute to a greater sense of responsibility on the part of the public and the profession in the utilization of expensive services.

3.5 PATIENT AND PHYSICIAN RESPONSIBILITY

3.5.1 The ease of access to free services provided by new marketing strategies and the requirements of universality have offered convenience which may have to be controlled by consideration of the following:

a) Balance billing.
b) Elimination of services from the Schedule of Medical Benefits not directly related to basic health care, i.e. cosmetic surgery.
c) Consideration of a delivery system where both patient and physician have a financial incentive to control costs as an alternative to the present system of unlimited access.
d) Consideration of the establishment of coinsurance which introduces patient and physician financial responsibility.
e) Avoidance of arbitrary rationing measures which may damage significantly the quality of the system.

3.6 PREVENTIVE HEALTH CARE MEASURES

3.6.1 Active encouragement on the part government of preventive health care measures such as the use of seatbelts, improved life style including excercise, weight reduction, avoidance of smoking, alcohol and drug abuse, should be encouraged.

4.0 CONCLUSION

The Utilization Committee has attempted to delineate measurable objective factors contributing to utilization. Its recommendations have heavily emphasized improved data management and educational programs as a means of encouraging a sense of responsibility on the part of physicians and patients in retaining Alberta's excellent health care system.

UTILIZATION OF MEDICAL SERVICES

LEVEL 2: MEDICAL SERVICE UTILIZATION, PERSPECTIVES, CONCLUSIONS AND RECOMMENDATIONS

Prepared by
Dr. D. G. Young
and the Utilization Committee

September 1985

LEVEL 2

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1.0 PERSPECTIVES

1.1 INTRODUCTION

The Utilization Committee's terms of reference specified a review of increasing utilization of medical services in Alberta over the five year period 1979 to 1983 with emphasis on diagnostic services. Recommendations were requested as to how the increase in rate of growth of services could be controlled. In this portion of the report - Level 2 - the first part entitled Perspectives reviews the factors which impact on the utilization of medical services. The second part, Review of Medical Service Utilization, 1979-1983 summarizes the Committee's conclusions from its review of categories of medical services with particular emphasis on Pathology and Other Diagnostic. Conclusions summarizes the Committee's conclusions as to the reasons for increasing utilization of medical services over the five years, in particular 1982 to 1983. Part 4, Recommendations, details the Committee's recommendations as to how utilization of medical services might be controlled.

1.2 THE POLITICAL CLIMATE

Prior to and since the implementation of Medicare in 1969 the federal and provincial government, in cooperation with the medical profession, have generously supported the improvement of physical facilities, the purchase of equipment, the training of health care personnel and the operation of the health care system. This support coincided with the introduction of space age technologies also developed through generously supported research. The result is a health care system in Canada second to none world-wide. The provision of universal access without cost assures all Canadians of the highest level of care, regardless of their means.

Only in the early 1980's, in the face of an almost infinitely expanding demand for services, was it realized that resources to support the growing health care system were limited.

A whole generation of Canadians, both patients and physicians, have never experienced the need for consideration of the cost of medical services. This potent reality in the pre-Medicare years acted as a control on the expansion of utilization of services and their attendent cost. To this younger generation the need for cost control and cost effectiveness is foreign and discomforting.

The year 1982-83 was the low point in the economy. Recession in Alberta occurred abruptly in 1981-82 as a result of the National Energy Program. The Alberta population suddenly stopped growing. Plans for the expansion of medical facilities and physician manpower prompted by population growth in the preceding 10 years had to be revised.

The implementation of the Canada Health Act and the attendant publicity on universality and access to the system, given extensive coverage by the press, occurred from 1982 to 1984.

Confrontations between physicians and government over benefit schedule increases heightened, in particular in late 1981 and early 1982.

Concurrent with the above, in 1982-83 there was an increase in the proportion of registrants using health care, alterations in physician billing patterns (reflecting their potentially declining income), the advent of new practice patterns manifest by walk-in clinics, the opening of new and expanded medical facilities, the coming on stream of more specialists and a broader range of diagnostic and therapeutic modalities adding to the physicians' armamentarium.

1.3 MEDICAL SERVICE AND PAYMENT INCREASES

A 139.6% increase in Department of Hospitals and Medical Care expenditures over the five years 1979 to 1983, with an acceleration of the rate of increase in medical services per thousand registrants of the Alberta Health Care Insurance Plan in particular 1982, heightened government's concern over escalating health care costs. Controls on hospital global budgets were introduced and met with some success, but fee for service expenditures through the AHCIP proved less amenable to control.

Figure 5 illustrates a decrease in the proportion of medical service expenditures over the five years, from 23.4% of the Department of Hospitals and Medical Care expenditures in 1979-80 to 20.2% in 1982-83. The 107.3% increase in expenditures for medical services compares to a 130% increase in acute care hospitals' operating costs and the total Departmental expenditure increase of 139.6% (Tables 3 and 4). These figures indicate that medical services, although showing a dramatic increase over the study period, did not manifest as great an increase as operating costs for acute care hospitals and the total Department budget.

Medical services per thousand registrants for the seven years prior to 1982 showed average yearly increases of -2 to 3.8% (Table 2). In 1982-83 services per thousand registrants abruptly increased 9.86% and in 1983-84 a further 7.41%. Preliminary data for 1984-85 indicate this increase continuing at 6.2%.

1.4 OTHER CANADIAN EXPERIENCE

Figure 2 and 3 illustrate that the abrupt increase in medical services and payments for medical services that occurred in Alberta in 1982-83 (exclusive of the categories Pathology, Radiology and Miscellaneous) was not a unique occurrence. A similar abrupt increase occurred for comparable medical services and payments for the entire Canadian population. This suggests similar factors increasing rates of utilization were operative nationally and not just in Alberta. That these increases are related partially to the economic downturn of the 1980's and the implementation of the Canada Health Act can be postulated.

1.5 THE ALBERTA POPULATION

The annual growth in the Alberta population of 4-5% per year during the 1970's was followed in the 1980's by a levelling off with no growth in 1983-84 (Fig. 19 and Table 43). During the five year study period Alberta's population increased 10.4%. In addition to a cessation of growth, there was a change in population distribution among age groups. Over the five year period the 25-44 year age group grew by 22.5% as compared to 9.7% for the Alberta population (Fig. 14 and 15 and Table 37). This growth was largely at the expense of the 15-24 year age group. Alberta residents over age 65 increased by 12.8% over the five years. Many younger people leaving the province as a result of the economic downturn contributed to this shift. This impact on the utilization of medical services is difficult to measure.

Discrete patients using medical services over the five year period increased 15.8% with even greater disproportionate changes in the age groups, the 25-44 year group increasing their use by 29.8%. Of interest, patients over 65 using medical services grew by only 16.5% Fig. 16 and 19 and Table 38).

The impression that the exodus from Alberta of younger persons during the early 80's would result in a marked increase in elderly patients is not corroborated by this data. The most striking increase in use occurred in the 25-44 year age group, especially when discrete patients using medical services are considered.

1.6 PHYSICIAN MANPOWER

Figure 19 compares the growth in numbers of physicians, discrete patients and the Alberta population over the 10 year period, 1974-75 to 1983-84. Prior to 1982 the 4-5% yearly increase in numbers of physicians was just keeping up with population growth, having fallen behind in 1974 when the two year prelicensure ruling curtailed immigration. The sudden cessation of population growth in 1982 resulted in a catch up. The continued 4-5% annual increase in physicians continued as those who entered medical school 6-10 years prior to this time entered practice.

Figure 20 and Table 46 illustrate patients per practitioner over the same 10 year period. The ratio of discrete patients per practitioner of 639:1 in 1983-84 was still greater than the 625:1 in 1974-75. Considering that growth in the number of physicians will most likely continue for some years, the stabilization of the Alberta population may reduce this ratio.

Figure 12 illustrates physician growth by specialty and indicates the accelerated increase in numbers of medical specialists, particularly 1982 to 1984, with a significantly lesser growth rate of surgical specialists.

1.7 CHANGING PATTERNS OF PRACTICE

During the five year study period there was continuing improvement of business practices by physicians, prompted in part by the anticipation and occurrence of 0% Schedule of Medical Benefit increases. Billing for services previously performed gratis was instituted, e.g. increases in the use of benefit codes for psychotherapy, contraceptive medication advice and annual physicals. The advent of electronic billing, automated patient record keeping and improved business practices contribute to the capturing of previously missed billings.

Ample office space was available during the study period. Developers realized that medical practices with accompanying laboratories and X-ray units proved desirable tenants. Access to medical services was enhanced. Concurrently there was a significant increase in walk-in extended hour clinics. This concept is a sound marketing approach to easing patient access to the system. The recent incorporation of health complexes into major shopping malls is an extension of this concept.

The trend towards marketing of physician services and easing access for the patient, while a sound business practice, is not balanced by any direct financial responsibility on the part of either the patient or physician. Logically such a situation will lead to an increase in use of medical services.

The ease of access without direct cost is perceived by the public, and many in government, as a right guaranteed by the Canada Health Act. Improved health care through early diagnosis may result, but whether the cost is justified remains to be seen. Furthermore, the potential for over utilization is strengthened.

Greater use of the growing number of medical specialists and the concept of a team approach to medical care, while considered improvements in the quality of medical care, are also significant contributors to medical service increases.

1.8 INCREASED PHYSICIAN VISITS

Increasing numbers of different physicians seen by patients can be a result of patient-initiated visits, increased rate of referral between physicians or a team approach by subspecialists. There was a small but measurable increase in physician-patient pairings over the five year study period, in particular general practitioners, and to a lesser degree medical specialists (Fig. 18). It was not possible to determine whether the increase was patient or physician-initiated.

1.9 MYTHS RE UTILIZATION OF MEDICAL SERVICES

Abuse of utilization of medical services on the part of both patients and physicians has been charged in the ongoing public debate.

Analysis of medical services by the Committee did not bear out the hypothesis that the rate of increase in service utilization is that unreasonable - given the diagnostic and therapeutic modalities available and the ease of access to their utilization. More often than not analysis of individual services revealed medical necessity to be the major reason for their utilization increase.

In perspective, the growth rate of medical services is not out of line with other sectors in the health care system, and over the years is consuming a smaller share of the health care dollar. Concern over cost control, while well intentioned, must be tempered by recognition of the advances incorporated into today's medical care and the improved system of delivery, both of which are the results of generously funded research, building and training programs on the part of government.

Along with the universal access to the health care system guaranteed by the Canada Health Act, patients can reasonably be expected to assume they will have access to diagnostic and therapeutic services which may help maintain or improve their health.

2.0. REVIEW OF MEDICAL SERVICE UTILIZATION - 1979 - 1983

2.1 MEASUREMENT OF UTILIZATION

2.1.1 Medical services as defined in the Schedule of Medical Benefits are not an ideal measure of utilization, but in the absence of other objective measures, they can be used to establish trends.

Discussion:

AHCIP medical service expenditures result from billings for services by physicians, a medical service being defined as the unit for payment by AHCIP. There are 4,215 services in the Schedule of Medical Benefits, individual services not being comparable as to time, skill and operational support required. Variable numbers of services may be generated by one patient-physician interaction which reflect both the patient's medical problem and the physician's practice pattern.

2.1.2 Salaried physicians perform services identical to but not included in AHCIP services.

Discussion:

AHCIP physicians account for approximately 85% of physician registrants of the College of Physicians and Surgeons. Part-time or full-time salaried and contracting physicians may perform services not counted by AHCIP, so an incomplete picture of medical service utilization in Alberta is given by AHCIP data, in particular Radiology. The proportions of physicians under AHCIP and on salary yearly cannot be easily determined.

2.1.3 Workers Compensation Board services are not included as AHCIP services. Failure to identify Workers Compensation Board services as such did not contribute significantly to increasing utilization of AHCIP services.

Discussion:

Payments for WCB services, when identified as such, are made by AHCIP but not counted as medical services. Failure to identify claims as WCB proved not to have contributed significantly to the increasing utilization during the study period.

2.1.4 The separation of hospital operations from AHCIP services reflected in both the Departmental organization and the funding mechanisms makes appreciation of their interdependence and measurement of their relative contribution to medical services difficult, if not impossible. Medical services, in particular Pathology, Radiology and Other Diagnostic, are performed in hospitals and other government laboratories. Their numbers are not readily available in a comparable format to AHCIP services.

Discussion:

Apparent during the study was the interdependence of the hospital and AHCIP sectors. All Major Surgery, Anaesthesia and Hospital Visits, and significant proportions of Consultations, Obstetrics and Minor Surgery are carried out in hospitals but not identified as such. Comparable data is required to fully assess medical service utilization rates. Pathology, Radiology and Other Diagnostic services can be performed in either sector and can shift back and forth, depending on a variety of factors. Again the lack of comparable hospital data makes the significance of these shifts and their impact on utilization difficult to ascertain. The recent implementation of stricter budgetary controls on hospital operation may conceivably increase AHCIP covered services, although data is not available to measure this shift.

2.1.5 Closure of hospital beds for remedial construction and as a result of the nurses' strike in 1982-83 impacted significantly on AHCIP utilization.

Discussion:

The closure of the province's hospitals as a result of the nurses' strike in the first quarter of 1982, coupled with the extensive remedial hospital construction in 1981-82 impacted significantly on the rates of utilization of AHCIP services. The result of these bed closures was a minimal medical service utilization increase in 1981-82 followed in 1982-83 by a significant rebound increase in medical service utilization which correlates with a significant increase in hospital patient days in 1982-83.

2.1.6 During the five year study period Alberta's population increased 10.4% whereas the proportion of registrants of AHCIP as discrete patients increased 15.8%.

Discussion:

During the study period an increasing proportion of registrants to AHCIP utilized medical services, with a particularly abrupt increase of 3-4% in 1982-83. The use of the index services per thousand registrants masks this increase in numbers of discrete patients using medical services.

2.2 MEDICAL SERVICE GROWTH CHARACTERISTICS 1979-80 to 1983-84

(Table 10, Figure 6 and Figure 7)

2.2.1 Medical services increased 32.9% over the five year period, averaging 7.4% per year. In 1982-83 the increase was 11.4%.

Medical services per thousand registrants increased 18.9% over the five year period, or at an average rate of 4.4% per year. The increase in 1982-83 was 9.6%.

Increased services added in 1982-83 were retained into 1983-84 suggesting changing patterns of medical practice.

Discussion:

Total medical services over the five year period increased at approximately three times the rate of growth in the Alberta population, and just over two times the rate of growth in discrete patients using AHCIP.

2.2.2 Office Visits, which represent entry of the patient into the health care system, accounted for approximately 40% of total services and total payments in 1983-84. The number of services increased 29.7% over the five year period.

The categories Miscellaneous, Consultations, Pathology, Other Diagnostic and Minor Surgery, which together accounted for 45% of total medical services and 31% of payments in 1983-84, grew at rates greater than Office Visits, the greatest increase being in Consultations.

The remaining categories, Major Surgery, Anaesthesia, Obstetrics, Surgical Assists, Radiology, Hospital Visits and House Visits, which in 1983-84 accounted for 15% of total medical services and 29% of medical payments, increased at rates less than Office Visits. Expressed per thousand registrants, Obstetrics and Surgical Assists showed no growth with a slight decline in Hospital Visits, Radiology and House Visits.

Discussion:

Table 10 and Figures 6 and 7 document these conclusions. Although Pathology and Other Diagnostic services have been of concern, Consultations have increased at an even greater rate. When Minor Surgery codes are brought together from different categories, its rate of increase is even greater than Consultations.

2.2.3 There was a significant increase in office visits not requiring complete exam (A2), with those for complete exam (A1) declining in 1983-84 after increases in the preceding 4 years.

The 1982-83 acceleration in the rate of increase for office visits is related to increased numbers of discrete patients using AHCIP plus possibly the advent of walk-in clinics. More precise use of the Schedule of Medical Benefits by physicians adopting modern business practices may also have contributed.

Changing practice patterns are illustrated by significant increases in billings for office psychotherapy, annual physical exams, contraceptive counselling and premarital examination.

2.2.4 The increase in the category Consultations was contributed to by increased numbers of consultants entering practice, their addition resulting from planned medical manpower growth.

To what degree consultations have increased due to peer pressure, patient pressure or insurance against potential lawsuit could not be measured although these factors could have contributed.

Mandatory consultations in hospitals required by medical staff rules, rule changes allowing same day consultation and procedure billings, and the growth of the team approach to patient care by multiple subspecialists contributed to increased consultations.

The accelerated rate of increase in Consultations in 1982-83 is related in part to the rebound phenomenon from construction closures and the nursing strike.

The impact of uncounted consultations by salaried or contracting physicians cannot be measured.

In the opinon of the Committee the increasing use of consultants is a positive step in improving the quality of care of Albertans.

2.2.5 Significant contributions to increasing utilization in the category Other Diagnostic were made by:

- a fourfold increase in diagnostic ultrasound services, 1/3 of which were pregnancy-related.
- a tenfold increase in respiratory function services, reflecting the opening of private respiratory function laboratories.
- significant increases in skin biopsies which would be better included under the category Minor Surgery.
- significant increases in various types of endoscopies.

Discussion:

The heterogeneous mix of Schedule of Medical Benefit codes assigned to the category Other Diagnostic masks significant utilization increases, particularly in the category Minor Surgery.

The 41.6% increase in services under this category in the five year period showed the most rapid growth in 1980-81 with a continuing linear rise since that time. Data from 1974 to 1980 indicate a fall in this category as a proportion of AHCIP services. Payment differentials exist between hospital and office performance of some procedures. The extent this differential influences where services are carried out could not be determined.

2.2.6 Minor surgical services increased 60% over the five years. If the tray fee is included, the increase in services was approximately 100%.

Discussion:

When minor surgery services included under Other Diagnostic are added to the category Minor Surgery a 60% increase occurs in this category rather than a 30% increase. A 649.8% increase in the use of the tray fee codes in the category Miscellaneous, which were introduced in 1979, when added as services to Minor Surgery, result in a 100% increase in services. In that a tray fee is remuneration for supplies for performance of a minor surgical procedure, one can argue it is not a service for purposes of medical utilization, but by definition of services as the unit of payment it must be included. The introduction of the tray fee in 1979-80 contributed to increasing utilization in this category.

The proportion of services performed in hospital vs. offices is not known although the tray fee may encourage office procedures. The known increasing incidence of melanoma in Alberta may lead to more excisions of nevi and potentially malignant lesions.

2.2.7 The Category Pathology

In view of the emphasis on diagnostic services in the terms of reference a more detailed analysis of this category was carried out.

a) The increasing rate in utilization of laboratory services began prior to the study period. Since 1978 pathology services per thousand registrants have increased at double the rate of office visits (Fig. 8).

b) High volume, low cost pathology services (17 of the 416):

- Account for 2/3 of total pathology services but only 1/2 of pathology payments.
- Decreased their share of total pathology services by 6% in the five study years.
- Increased 33.7% over the five study years, closely paralleling the 29.7% increase in Office Visits.

Discussion:

These services, which include CBC's, urinalyses, M-12, pregnancy tests, etc. are widely used by many physicians, often initiating diagnostic work up. Details of their numbers and increases are given in Table 18.

c) Low volume, expensive services (399 of the 416):

- Account for 1/3 of the total pathology services but 1/2 of pathology payments.
- Increased their share of total pathology services by 6% over the study period.
- Increased 74.5% over the five study years, or greater than double the rate of Office Visits.
- As these procedures represent a growing area of clinical pathology, further increases can be anticipated.

Discussion:

Specific growth areas in these low volume categories included thyroid function testing, hematinic factor assays, electrolytes, therapeutic drug monitoring, tissue gross and micro examinations, lipid studies, and hemoglobin electrophoresis. During the study period many of these services had newly assigned Schedule of Medical Benefit codes, some of which represented payments for previously non-listed procedures.

Many of these procedures represent the implementation of new diagnostic procedures which are the outcome of extensive research during the past decade. The continued rapid application of the spin offs of space age technology to laboratory testing will undoubtedly expand the growth in utilization of these services.

d) AHCIP pathology services grew at approximately three times the rate of hospital out patient pathology services over the five year period.

Discussion:

Data available from hospitals were out patient StatsCan units, which although not fully comparable to services, allow for a reasonable approximation. In that AHCIP pathology services increased at triple the rate, it can be postulated that physicians are using AHCIP funded laboratories more often than hospital out patient laboratories. Restrictions on hospital global budgets recently introduced may further accelerate this trend.

e) A significant documented shift in microbiology services from the Provincial Laboratory of Public Health to AHCIP funded laboratories occurred during the study period.

Discussion:

Using routine bacterial cultures only, the combined numbers for both AHCIP funded laboratories and the Provincial Laboratory grew approximately 30% over the five year period. The proportion of these cultures carried out in each sector varied markedly, the numbers decreasing by 16.7% at the Provincial Laboratory but increasing 63% in AHCIP funded laboratories (Table 17).

Provincial Laboratory data was in terms of specimens received for analysis, again providing only an approximation with AHCIP services. Budgetary restraints applied to the Provincial Laboratory may have significantly contributed to their reduced share of the culture market. Their ability to provide equivalent service was impaired. Although this shift of cultures contributed significantly to the increased cost of AHCIP services, no data was available as to whether the cost savings were offset by decreased Provincial Laboratory costs.

f) Differing but unrelated funding mechanisms and budgetary policies among AHCIP, hospital laboratories and provincial laboratories appear to significantly affect the location where pathology services are performed.

g) The accentuated rate of increase in 1982-83 in pathology services paralleled Office Visits. Also contributory were the implementation of medical benefit codes for new methods, in particular therapeutic drug monitoring, hematinic factor assays and thyroid function testing during this year.

h) Changes in the prevalence of disease in Alberta contributed to increased laboratory utilization, i.e. the epidemic of giardiasis, the increasing interest in colon cancer detection, the use of lipid studies in detection and prevention of cardiovascular disease and hemoglobin electrophoresis on immigrants from southeast Asia.

Discussion:

Study over a five year period limits drawing firm conclusions as to the impact of changes in prevalence of disease on utilization of services.

i) Peer pressure and recommendations of academic or professional groups indirectly affect utilization of pathology services.

Discussion:

The recommendation that TSH assays be used to screen patients over 40 for hypothyroidism may have been contributory to the abrupt increase in utilization of this test. Similarly, physicians trained largely in an apprenticeship type system continue to acquire skills and diagnostic work up patterns from consultants and their peers. To what degree these pressures contribute is not measurable.

j) Universality of Medicare and the lack of direct financial responsibility on the part of patients and physicians was most certainly contributory, although not measurable.

Discussion:

The ease with which laboratory services can be ordered and obtained will contribute to their unneccesary repetition. Many physicians have noted patients requesting procedures they have read about in the press. The lack of any direct financial responsibility makes it difficult for the physician to refuse such requests.

k) The expansion of satellite laboratories located adjacent to office practices continued during the study period. The ease of access provided can be postulated to be contributory to utilization of laboratory diagnostic services, but again it is difficult to measure the impact.

l) Also the growing number of walk-in extended hour clinics with adjacent laboratories open evenings and weekends improves access to laboratory procedures, possibly increasing their utilization.

m) Repetitive testing by multiple consultants and failure to use previous results may have contributed to the increase in pathology services.

2.2.8 The category Major Surgery showed 2/3 of its 24% five year increase in services in 1982-83, related to the opening up of hospital beds closed in 1981-82 by remedial construction and the nurses' strike. Surgical Assists and Anaesthesia closely paralleled Major Surgery.

Given the advent of newer surgical techniques, the rate of increase over the study period in major surgical services is not inappropriate.

The performance of major surgical procedures in private facilities, i.e. lens implants for cataracts, was a major growth area in this category. Performance of these procedures in office facilities will relieve pressure on hospitals although the economic saving to hospitals has not been documented.

Discussion:

Documentation was obtained which illustrated a fall in major surgical services in the latter part of 1981-82 with a marked acceleration in 1982-83. These changes paralleled hospital admissions. The fact that related Anaesthesia, Surgical Assists, and Hospital Visits showed the same pattern of change corroborates this conclusion.

2.2.9 Obstetrical services increased in proportion to Alberta's birth rate during the period without accentuation in 1982-83.

If pregnancy-related ultrasound services were added to Obstetrics rather than the category Other Diagnostics, the category Obstetrics would have its services increased by 57% in the year 1983-84.

Discussion:

Obstetrics illustrates the problem of comparing services. Prenatal care, delivery and postnatal care of one pregnancy is counted as one service. When one considers that under Pathology a urinalysis is one service, the weakness in comparison of services between categories becomes apparent.

Failure to include pregnancy-related ultrasound procedures in the category Obstetrics does not allow for an appropriate impression of the growth areas in this field.

2.2.10 Correction of code assignments between House Visits and Hospital Visits reveals both of these categories declined in services per thousand registrants over the study period, contrary to the previous impression of a marked fall in House Visits and an increase in Hospital Visits (Tables 8 and 9).

Hospital Visits showed an accelerated rate of increase in 1982-83 paralleling Major Surgery and the previously noted increased patient days in that year.

The slight decline in House Visits reflects the trend towards office and institutional practice and the ease of access to these facilities over more extended hours.

Discussion:

The change in Schedule of Medical Benefit codes for call back to hospitals in 1982-83 (A29 to A29A and A29B) resulted in the previous impression of a fall in House Visits. Care must be taken when Schedule of Medical Benefit codes are changed to assure they are correctly assigned to categories used to monitor utilization.

2.2.11 The decline in radiology services per thousand registrants over the five year period is deceiving:

- Ultrasound procedures are included under the category Other Diagnostic.
- Many sophisticated radiologic imaging procedures are now carried out in hospitals.

Discussion:

The dramatic change in Radiology over the past five years, with the introduction of CAT scanning and other imaging procedures is not accounted for in AHCIP data. Much of this work is done in hospital radiology departments. A true picture of the utilization of radiological services cannot be obtained without including hospital performed services.

3.0 REASONS FOR INCREASED UTILIZATION

3.1 SOURCE DATA

3.1.1 Services as a Measure of Utilization

Medical services, defined as the unit of payment by AHCIP, are not an ideal measure of utilization in view of lack of comparable time, skill and operational support required. However they remain the only objective measures available.

3.1.2 Medical Service Categories

Assignment of the 4,215 Schedule of Medical Benefit codes to 12 broad medical service categories allows for condensation of large volumes of data. However it can lead to mistaken conclusions if the Schedule of Medical Benefit code assignment is not comparable year to year and medically related services are not grouped together.

3.1.3 Lack of Data from Hospitals and Other Government Laboratories Comparable to AHCIP Medical Service Data

Medical services performed in hospitals or other government laboratories, but not counted under AHCIP data, prevent determination of relative service volumes in each sector. More importantly, these uncounted services do not allow for detection of shifts among the sectors.

3.2 FACTORS AFFECTING INCREASED UTILIZATION OF MEDICAL SERVICES 1979-80 to 1983-84

3.2.1 Universality

The universal access all Albertans have to medical care services, without direct financial responsibility of either the patient or physician, has created a potential for almost infinite demand in the face of finite resources.

3.2.2 The Canadian Experience

Comparable increasing rates of utilization over the five year study period, including the accentuation of increase in 1982-83, occurred in all of Canada and not just Alberta. This suggests factors other than shifts in population were operating.

3.2.3 Population

Over the five year study period, while medical services increased 32.9%, the Alberta population increased 10.4%. Registrants of AHCIP using medical services as discrete patients increased 15.6%.

This increase in both population and discrete patients was predominantly in the first four study years, there being a cessation of population growth in 1983-84.

Despite the cessation of population growth, medical service utilization rates continued to increase.

3.2.4 Physician Manpower

The ratio of discrete patients per practitioner of 639:1 in 1983-84 was greater than the ratio in 1974-75 of 625:1.

Prior to 1982 the 4-5% increase in physicians entering practice each year was just keeping pace with population growth.

With the cessation of population growth and the continuing entry of physicians into practice the patient/physician ratio fell during the latter 2 years of the study. This ratio may fall further as numbers of physicians entering practice are planned 6-10 years prior to their entry.

3.2.5 Improved Business Practices on the Part of Physicians

Fear of declining incomes in the face of confrontations with government over the Schedule of Medical Benefits and the anticipation and occurrence of 0% payment increases have encouraged improved business practices and more efficient use of the Schedule of Medical Benefits. Billings for services performed gratis prior to this period most likely occurred.

3.2.6 Improved Marketing of Medical Services

Ample, relatively inexpensive office space, the establishment of laboratories and radiology facilities adjacent to physician practices, and the advent of walk-in extended hour clinics are sound marketing principles, making medical services available to patients. The development of health complexes in shopping malls is an extension of this concept.

The trend towards marketing of physicians' services by easing access for the patient is not balanced by any direct financial responsibility on the part of either the patient or physician. Logically this situation can lead to an increase in the use of medical services.

3.2.7 Increased Numbers of Physicians Seen by Patients

Although the changes are small, a measurable increase in physician-patient pairings between the first and last years of the study was detected, predominantly with general practitioners and to a lesser extent medical specialists. Although soft data, this finding agrees with the impression that patients are seeing greater numbers of physicians each year.

3.2.8 Office Visits

Office Visits, which represent in part entry of patients into the system, increased 29% during the study period.

3.2.9 Minor Surgery

When minor surgical services were reallocated to the category Minor Surgery there was a 60% increase in services. If tray fees from the category Miscellaneous were included, in that they are related services, the increase in services under this heading would be 100% over the five year period.

Payments for tray fees implemented in 1979 increased 600% over the five year period, contributing significantly to utilization.

3.2.10 Consultations

The category Consultations increased 48.8% over the five year period, related to the coming on stream of new medical specialists. A greater use of consultants and a wider range of available diagnostic tests contributed to this increase.

3.2.11 Pathology

Over the five years:

a) Pathology services increased 45%.
b) Seventeen frequently used basic pathology services accounted for 2/3 of all pathology services but only 1/2 of payments and increased 33%, comparable to the rate of increase in Office Visits.
c) The remaining 399 low volume, expensive pathology services, which accounted for only 1/3 of total services but 1/2 of payments, increased at a rate of 76%, in particular thyroid function studies, therapeutic drug monitoring, hematinic factor assays and electrolyte assays.
d) A shift in services from the Provincial Laboratory of Public Health and hospital out patient departments to AHCIP funded laboratories was documented, contributing significantly to pathology services, in particular in the area of microbiology, cultures, serology and parasitology.
e) The addition of new codes to the Schedule of Medical Benefits, in particular for drug and hormone assays, impacted significantly.

3.2.12 Ultrasound

A 423% increase in ultrasound services included under the category Other Diagnostic contributed significantly to increasing utilization. If ultrasound was included under Radiology the latter would have shown double the rate of increase. If pregnancy related ultrasound services were included in the category Obstetrics the latter would have shown greater than double the rate of increase.

3.2.13 Respiratory Function Diagnostic Services

Respiratory function diagnostic services increased 600% during the study period, correlating with the opening of respiratory function laboratories funded by AHCIP.

3.2.14 Endoscopies

A significant twofold increase in the various forms of endoscopy occurred over the five year period. Awareness of early diagnosis in the treatment of gastrointestinal malignancy has prompted this increase.

3.2.15 New Medical Services

The coming on stream of new medical services, including lens implants for cataracts, endoscopy, ultrasound and other laboratory diagnostic services, representing the application of new technology and knowledge to medical care, impacted on the increasing rate of utilization.

3.2.16 Workers Compensation Board Claims

Identified Workers Compensation Board claims are not counted as AHCIP medical services. Incorrectly identified Workers Compensation Board claims did not contribute significantly to the increased utilization.

3.3 FACTORS CONTRIBUTING TO THE ACCELERATED RATE OF INCREASING UTILIZATION IN MEDICAL SERVICES IN 1982-83

3.3.1 The 11.4% increase in services in 1982-83 was continued into 1983-84 suggesting this was not a clustering of services in one year, but rather a permanent change in the level of service utilization.

3.3.2 Utilization data for all of Canada indicate a similar accentuation of medical service utilization in 1982-83 suggesting factors acting at a national level.

3.3.3 A sudden 5% increase in discrete patients seen in 1982-83 is estimated to have increased services by 3.8% in that year.

3.3.4 The nurses' strike in the winter of 1982 and the extensive hospital remedial construction in 1981-82 reduced hospital utilization with a corresponding fall in hospital related AHCIP services, i.e. Major Surgery, Anaesthesia, Surgical Assists and Hospital Visits. This was followed by a rebound in hospital bed utilization in 1982-83 and similarly in the hospital related AHCIP services, in particular Major Surgery.

3.3.5 Medical specialists entering practice tended to cluster in 1982-83, possibly compounding the pressures on utilization resulting from 3.3.4 above.

3.3.6 Eleven of the 13 service categories showed significant increased rates of utilization in 1982-83. Obstetrics did not show this peak, probably because it is dependent on the birth rate. The category Other Diagnostic showed a maximum increase in 1983-84 although ultrasound services peaked in 1982-83. The category Miscellaneous is 3/4 tray fees.

3.3.7 Confrontations with government over Schedule of Medical Benefit increases were accentuated in late 1981. With the anticipation of 0% payment increases, improved business practices were implemented on the part of practitioners. Services previously not billed may conceivably have been added. Wider use of codes for psychotherapy, contraceptive advice and annual physicals are examples of changing billing patterns.

3.3.8 During the study period walk-in clinics opened with extended hours of service. The improvement in the ease of access to medical services is reflected in the disproportionate increase in the benefit code A2, particularly in 1982-83.

3.3.9 The addition of benefit codes under the category Pathology for the performance of hormone assays, drug monitoring and hematinic factor assays occurred in 1982-83 with a sudden and dramatic increase in these services that year.

3.4 UNMEASURABLE FACTORS

3.4.1 In the opinion of the Committee Albertans have a health care system second to none world-wide. Concerns over cost and inappropriate responses to controlling its escalation may endanger the quality of care.

3.4.2 The Schedule of Medical Benefits remunerates medical services procedures. This may encourage neglect of some humanitarian aspects of caring for the patient; often a time consuming responsibility of the physician. The Committee expressed concern in this area.

3.4.3 It is the opinion of the Committee that the escalation in medical services over the study period is not unreasonable when compared to other sectors in the health care system. It reflects the desire of individual Albertans for adequate care to maintain their good health.

4.0 RECOMMENDATIONS FOR CONTROL

The committee's recommendations fall in three areas: those pertaining to medical services - 4.1 and 4.2; those related to future monitoring - 4.3 and 4.4; and those for consideration in the long term control, if current trends in utilization continue - 4.5, 4.6, 4.7 and 4.8.

4.1 NONDIAGNOSTIC MEDICAL SERVICES

4.1.1 Physicians should assure that requested consultations are based on medical necessity, in view of the direct and indirect expenditures they incur.

Discussion:

The increase in Consultations exceeded the increase in Pathology services over the study period. While the addition of more specialists and the use of consultants can enhance the quality of patient care, the benefit must be tempered by the realization of its cost. The addition of consultants has been planned growth in medical manpower. No data is available to indicate what might be the optimal numbers of consultants or patterns of consultation that can be recommended.

Consideration of the establishment of guidelines as to the use of consultant services should be given.

4.1.2 The rapid growth in minor surgical services should be reviewed to assure these services are prompted by significant medical necessity.

Discussion:

The lack of data as to the location of performance of minor surgical procedures (in private offices or hospitals) makes assessment of this growth difficult. The delays encountered in hospital practice, and the limitations on operating room space for cut patients, may encourage the office performance of minor surgical procedures. Fee differentials between office and hospital locations should be further investigated.

The striking increase in minor surgical services concurrent with the growth in the use of the tray fee suggest the possibility of economic gain as opposed to medical necessity. Prior to the tray fee's introduction reimbursement for costs incurred was not available. The

tray fee was an attempt to provide this financial coverage distinct from the physician's fee. The increased incidence of melanoma in Alberta would justify in part increased minor surgical procedures, although again, measuring its impact is not possible.

4.1.3 Increasing use of benefit codes for various forms of office counselling suggest a trend to increasing utilization that should be reviewed.

Discussion:

Counselling is a major part of a physician's practice, not well covered in a procedure-oriented Schedule of Medical Benefits. Whether the increased use of counselling related office codes is justified could not be determined. In view of the perception of many that the humanitarian aspects of physician care are being overwhelmed by marketing of procedure oriented services, this area demands considered review.

4.1.4 The application of modern technology and procedures allows for out- patient or private facility performance of many services. Although increasing AHCIP medical services, these other services may represent a cost saving to the hospital sector.

Discussion:

The performance of lens implants in private facilities is a case in point. Other procedures now performed in hospitals could be transferred to the private sector. Data should be derived to determine cost savings accrued, and used to offset increases in AHCIP payments. The lack of such data, possibly a reflection of the previously noted Departmental separation of hospitals and AHCIP administration, should be corrected.

4.1.5 Hospital bed closures which result from construction, budgetary policies or strikes may impact adversely on the rate of utilization of medical services.

Discussion:

In isolation such bed closures may be considered cost effective but given their impact on other sectors, this limited cost effectiveness may not be relevant. The rebound increase of hospital activity in 1982-83 and its impact on medical service utilization illustrates this point.

Publications detailing laboratory costs indicate that reductions in the work volume are not accompanied by equivalent cost savings. Changes in hospital operation, in particular bed closures for budgetary or other reasons, must be evaluated in terms of their impact on other sectors in the health care system. Services lost by hospitals as a result of these pressures may not be regained once established in the private sector.

4.1.6 Prospective studies of utilization in walk-in, extended hour clinics should be initiated which will require the definition of which practices fall under this heading.

Discussion:

The committee's studies suggest a contribution of walk-in extended hour clinics to the increasing utilization. Inability to define which practices fall under this heading precluded further study. Such practices must be defined with the College of Physicians and Surgeons and the A.M.A.

A retrospective study of patients utilizing such clinics, with follow up data on other physician visits, would involve an expensive and time-consuming computer program to achieve. A prospective study would allow the establishment of a less expensive, more manageable data base.

4.2 DIAGNOSTIC SERVICES: IN PARTICULAR, PATHOLOGY

4.2.1 A review of the Pathology section of the Schedule of Medical Benefits should be carried out with pathologists through the A.M.A.

Discussion:

The classification and definition of Pathology codes in the Schedule of Medical Benefits makes their use for monitoring utilization most difficult.

Codes with questionably high fees were apparent, but this was balanced by others which were underpriced.

Establishment of a subcommittee by the recommended utilization monitoring committee to reorganize the confusing code sequence, change outdated terminology, eliminate duplicate codes for the same services and to clarify ambiguous codes, would be a priority.

4.2.2 Pathology services undergoing rapid growth should be identified. In cooperation with the profession, guidelines for their use should be established so there is a balance between medical necessity and cost.

Discussion:

Thyroid function testing, therapeutic drug monitoring, hematinic factor assays, other hormone assays and electrolytes are some of the growth areas identified in this study. Assurance of appropriate use is the responsibility of the entire medical profession. Pathologists, after all, provide the services which are ordered by other physicians. Physician ordering patterns are largely developed prior to entering practice so feedback to the faculties of medical schools is also essential.

4.2.3 Repetitive laboratory testing should be avoided if results are available from other laboratories or hospitals.

Discussion:

Convenience often prompts repetition of laboratory studies already available on patients, particularly when they are referred to a hospital or consultant. Considering the costs involved, transmission of patient data should be made to avoid unnecessary repetition.

4.2.4 Pathology services performed in hospitals and other laboratories should be monitored to detect shifts in location. Cost savings could be measured in one sector which might balance the increases in the other sector.

Discussion:

Demonstrated shifts to AHCIP funded laboratories from the Provincial Laboratory and hospital out patient departments added to pathology utilization during the study period. Lack of data to determine the offsetting cost savings is disturbing. Conceivably the savings in the Provincial Laboratory and hospital sectors may justify private laboratory location of these services. Similarly, the improved turn around times and quality of service offered is also a consideration. Data to measure the occurence of shifts in location of performance of services should be generated and monitored.

4.2.5 The respective roles of the Provincial Laboratory of Public Health and AHCIP funded laboratories in the provision of microbiologic services must be defined.

The demonstrated shift of culture services without documentation of cost increases or savings is disturbing. With the coming on stream in the near future of many new procedures for serologic testing, and in particular for direct diagnosis of sexually transmitted diseases, considerable cost increases will occur. This makes resolution of the role of the Provincial Laboratory even more important.

4.2.6 Other diagnostic procedures undergoing rapid growth must be identified, monitored and consideration given to establishing guidelines for their use in cooperation with the profession.

Discussion:

Diagnostic ultrasound, respiratory function studies and endoscopies are examples whose growth requires close monitoring. With changing technology new areas will emerge which, if detected early and subjected to reasonable guidelines, will allow for more rational decisions as to cost effectiveness.

4.3 DATA

4.3.1 The data used to monitor utilization should be reorganized and improved to include equivalent and related medical services from hospital and other government supported laboratory sectors (Provincial Laboratory). This will measure all utilization of medical services and detect shifts of provision of these services between sectors.

Discussion:

Recurrent throughout the review of medical service utilization was evidence of undocumented shifts to AHCIP funded medical services from both the hospital sector and the Provincial Laboratory. The separation of hospital and AHCIP funding from the Departmental organization down should not retard flow of comparable data from each sector. Demonstrated shifts to AHCIP funded laboratories, in particular from the Provincial Laboratory, had not been previously documented. Concern over the cost of increasing utilization of medical services did not take into account savings that may have occurred in the Provincial Laboratory or the hospital sector.

A good portion of newer radiological imaging procedures are carried out in hospitals, so a true picture of the utilization of radiological services cannot be gained without including hospital data.

The majority of services under the headings Major Surgery, Anaesthesia, Surgical Assists and Hospital Visits, and significant numbers of Obstetrical, Minor Surgical and Radiological services are carried out in hospitals. Some of these services are not funded by AHCIP. A true picture of medical service utilization, and again, shifts between these sectors, with the addition of cost to one sector but cost savings in the other, is not apparent using the present data base.

4.3.2 It would be wise to achieve comparability of medical service utilization data being gathered by Canadian provinces and the federal government in order to separate regional from national trends.

Discussion:

Based on available data, medical service utilization increases during the study period were not an isolated Alberta phenomenon but occurred nationally. This emphasizes the need for assuring comparable provincial data. The problem of achieving a uniform reporting system across Canada should not deter the establishment in Alberta of a reporting system that can assist the Alberta government in providing financial support.

4.3.3 **Using the current categories of medical services as the basis there should be a revision of the classification of Schedule of Medical Benefits codes. This would bring together medically related services into major categories, minor categories, subcategories and specific profiles such that easily digestible comprehensive data is available to monitor changing trends in utilization of medical services.**

Discussion:

Appendix A is a proposal developed by the Committee to modify the category classification to identify medically related services. It uses the existing Schedule of Medical Benefit codes as its basis. As services are units for payment, they are not the ideal measures of utilization, but much improvement could be achieved with a medically oriented reorganization.

Care must be taken when Schedule of Medical Benefit codes are changed to assure that they are classified in such a way to allow year to year comparison of data.

4.3.4 **Indices of utilization should be established and used as a profile of utilization.**

Discussion:

The five indicators of utilization: medical services, registrants, population, discrete patients and physicians, can be used to derive seven indices of utilization: services per registrant, services per population, services per discrete patient, services per physician, discrete patients per physician, and discrete patients per registrant. These indices can serve as readily monitored profiles of utilization. The use of one index only, i.e. services per registrant, does not give a complete picture and may lead to incorrect conclusions.

Conceivably, similar indices can be applied to monitor subgroups of the population or subgroups of services, and possibly extended to comparable services performed in other areas of the health care system.

4.3.5 The reorganized category data, complemented by comparable data from hospitals and other laboratory sectors should be condensed into understandable reports for review by the profession and government on an ongoing basis.

Discussion:

The wealth of information on utilization of medical services is currently not being well used, in part due to its complexity. As a billing data base, emphasis on payments rather than services is evident. It is only by gaining insight into what services are utilized, and for what medical reasons they are used, that a more realistic picture of medical service utilization can be achieved. This can then serve as one of the factors determining payments for these services.

Busy health care administrators and physicians, confronted with voluminous undigested computer printouts, will either ignore their contents or seek only verification of preconceived opinions.

4.3.6 The data on services and payments, although preliminary, should be made available as soon as possible. Minor revisions may be required.

Discussion:

When annual data summarizing utilization and payments is up to two years old it becomes more an historic document than a useful working document.

4.4 CONTINUED MONITORING

4.4.1 There should be ongoing monitoring of utilization of medical services in all sectors with the development and dissemination of easily interpreted data to health care professionals and the public.

4.4.2 A "working" committee should be established for the ongoing monitoring of utilization of medical services with input from the

Department, the A.M.A. and the College of Physicians and Surgeons. It should:

- Provide objective data on the utilization of medical services for the negotiations carried out by the profession and the Department for remuneration of services. The committee should not be involved in the negotiation process.
- Provide objective utilization data, assuring appropriate medical input for planning the growth of health care in coordination with growth of other monitored sectors.
- Set up subcommittees with members of the profession and the Department to monitor and advise on problem areas in medical service utilization.
- Assure objectivity by avoiding involvement in the political sphere.

Discussion:

In providing medical service utilization data the resources of the Department, in economics and administration, are not integrated with the expertise of physicians who know the medical necessity of services. Blending these human resources by cooperation between the Department, and the medical profession (through its representative bodies, the A.M.A. and the College of Physicians and Surgeons), would provide a far superior knowledge of the utilization of services. The structure of such a committee, assuring equitable representation of all groups, would be the perogative of the Minister. Input on the part of representatives of the public might be considered. However, in view of the working committee's task of digesting medical service data and evaluating its medical and economic significance, such input might be fruitless. The advisability of such representation can best be determined by the Minister.

4.4.3 The findings of this monitoring committee would be published as condensed and easily readable reports on medical service utilization for use by the medical profession and its representative bodies, the medical schools, the government and the public.

4.4.4 Monitoring of all health care professionals and other health care areas should occur to assure growth in physicians' services is judged in perspective.

Discussion:

Expenditures for dental surgery, chiropractic, optometrists, podiatrists and physiotherapists show growth rates exceeding physicians' services in some years.

Growth in services provided by hospitals and other government laboratories which entail increasing costs require monitoring and consideration when changes in physicians' services are reviewed.

Expenditures for extended benefits and expenditures for services by the Community Health Division of the Department of Social Services and Community Health should be included in the monitoring process and available for comparison when health care costs and physicians' service costs are reviewed. Conceivably, cost savings will be detected offsetting increases in other areas.

4.4.5 The Schedule of Medical Benefits should be reviewed with the profession correcting conflicting services codes, deleting little used codes, and identifying and clarifying ambiguous services. This recognizes the schedule as not only the basis for payment of services but also the basis for measurement of service utilization.

Discussion:

The Schedule of Medical Benefits is the mechanism whereby medical services are reimbursed. Rapid or dramatic alterations would have serious repercussions on physicians, potentially creating hardships for those affected. Nevertheless, changes are needed, in particular in the area of Pathology, and should be initiated and continued.

Recognition that design of the Schedule itself may influence practice patterns should be taken into consideration. For example, Minor Surgery and the tray fee costs differ between hospital and private offices. Considering that physicians' incomes are potentially affected by such review, close cooperation between the Department and the Alberta Medical Association is mandatory.

4.5 EDUCATIONAL PROGRAMS

4.5.1 Educational programs should be established for the medical profession and the public using the information derived from utilization review.

4.5.2 The practice profiles used for professional review can serve as a feedback on utilization of medical services for all physicians. Reports that are in an easily readable format with appropriate comparative data should be provided.

Discussion:

The maintenance of practice profiles for the purpose of professional review would allow the use of an already existing data base. With modification these could be used for dissemination of information and not just for the potentially punitive aspects of professional review.

4.5.3 The A.M.A., the College of Physicians and Surgeons and the provincial medical schools (possibly through their representatives on the Council of College) should be encouraged to inform their members of medical service utilization patterns leading to increased costs. Also they could provide input to the monitoring committee as to appropriate formulation of data and mechanisms of distribution to the profession.

Discussion:

Guidelines for investigative studies utilizing diagnostic procedures could be developed and incorporated into the teaching of medical students and the ongoing educational process of practicing physicians.

4.5.4 Appropriate feedback to the public of utilization data by government, aided by the A.M.A. and the College of Physicians and Surgeons, should be implemented. This would develop a more responsible approach to the use of expensive resources by patients.

4.6 PATIENT AND PHYSICIAN FINANCIAL RESPONSIBILITY

Consideration must be given to the following means to balance the ease of access to free services developing in the province.

4.6.1 Balance billing introduces an element of direct financial responsibility on the patient's part for services.

Discussion:

Although politically unpopular, balance billing remains one of the only direct financial responsibilities patients bear when they use the health care system.

4.6.2 The ease of access to free services provided by marketing strategies may necessitate a fee for the convenience offered, above and beyond the basic health care need.

Discussion:

Crowded emergency rooms acted as a deterrent to excessive after hours utilization of services and precipitated the success of after hours walk-in clinics. Triaging of patients in the emergency rooms assures that urgent problems are handled promptly. The delays for less urgent services are sufficiently inconvenient to prompt patients to leave. After hour clinics provide patient convenience as well as a convenience to many physicians whose offices close at 5:00 P.M. Whether universality of health care includes these added conveniences can be questioned.

4.6.3 Services not related directly to basic health care should be deleted from the Schedule of Medical Benefits, becoming the responsibility of the patient.

Discussion:

The majority of patients desiring cosmetic surgery procedures are able to afford them. Hospital facilities used for such services should also be the patient's responsibility.

Provision can be made for those patients not able to afford such procedures where medical necessity is the indication for the procedure.

4.6.4 Consideration should be given to demonstrated cost saving programs of coinsurance or programs in which patients and physicians have financial responsibility.

Discussion:

Demonstration by the Rand Corporation Study in the U.S.A. proved that, when only coinsurance was provided, and there was some direct patient responsibility financially, that a reduction in physician utilization and hospital admissions of some 40% occurred (NEJM 1981; 305:1501-7: NEJM 1983; 309:1426-34). This should be followed up, both at a provincial and national level.

The concept of a delivery system where both the patient and physician have a financial incentive to control costs should be further explored. This is a possible alternative to the present system of unlimited free access.

4.6.5 Improved information feedback and education must be undertaken to avoid arbitrary rationing of services which may endanger the quality of care.

Discussion:

Given the excellent system we now have, poorly planned attempts at rationing services may create severe deterioration in quality.

4.7 PREVENTIVE HEALTH CARE MEASURES

4.7.1 Preventive health care measures and improvements in lifestyle should be encouraged where these are known to reduce medical service needs.

- Mandatory seatbelt legislation should be reconsidered in view of its proven contribution to reduced morbidity and mortality in motor vehicle accidents.
- Programs to reduce cigarette smoking, particularly among younger age groups should be encouraged.
- Education and services encouraging the prevention of alcohol and drug abuse should be enhanced.

Discussion:

The known advantages of improved lifestyle including exercise, weight reduction, avoidance of smoking and the avoidance of alcohol and drug abuse should all be actively encouraged. A concerted effort towards the prevention of disease, and an improved understanding of the finite nature of human existence, will become more important in dealing with the problem of rising health care costs.

Anti smoking campaigns sponsored by the Community Health Division of Alberta Social Services and Community Health and other private groups, and drug and alcohol abuse programs sponsored by AADAC should be encouraged.

4.8 QUALITY OF CARE

4.8.1 Financial resources provided by government have resulted in a health care system of which we can all be proud. Recent emphasis on the quality of care should be encouraged and possibly formalized in the area of medical services.

Discussion:

Quality assurance monitoring programs have recently been introduced into hospitals. They attempt to define the nebulous but important area of the quality of the service provided.

Monitoring committees of the Alberta Medical Association dealing with specific areas of medical practice, the

Laboratory and Radiology Accreditation committees of the College of Physicians and Surgeons, provide well developed quality assurance monitoring programs. Documentation for government and public review of this existing monitoring with its extension to other areas of medical service utilization should be carried out.

The perception of the public as to the quality of the care they are receiving and the cost they are willing to accept to retain it, in the final analysis will determine the level of funding available for the health care system.

LEVEL 2

APPENDIX A

PROPOSAL FOR REVISION OF CATEGORIES OF MEDICAL SERVICE

The thirteen currently used categories of medical service were established by the federal government in 1971. The 4,215 Schedule of Medical Benefit codes assigned to these categories by the present classification do not fully reflect medically related services. In order that this categorization can be better used as a means of monitoring utilization of services, the following is proposed.

1. Organization of Schedule of Medical Benefit Codes

Four subdivisions can be developed, each represented by a 2 digit code as follows:

Major Categories	00
Minor Categories	00
Subcategories	00
Profiles	00

A minimum classification for any one code would be into major and minor categories. Subcategories and profiles are optional if further subdivision for utilization review purposes is desired.

2. Major Categories

The sequencing reflects nondiagnostic and diagnostic services and patient-generated and physician-generated services.

01	Office Visits	
02	House Visits	Largely patient-generated
03	Obstetrics	
04	Consultations	
05	Major Surgery (including Surgical Assists)	
06	Anaesthesia	Physician-generated nondiagnostic
07	Minor Surgery	
08	Hospital Visits	
09	Radiology and Diagnostic Imaging	
10	Pathology	Physician-generated diagnostic services
11	Other Diagnostic	

3. Minor Categories

Minor categories should reflect major subdivisions related to the organization of benefit codes in the Schedule of Medical Benefits. The extent to which minor categories are developed will depend on the perceived need for utilization purposes. For instance, all of the "1" codes under Office Visits can be a minor category or they can be broken down by specialty. A decision as to whether utilization review through minor categories is to be by medical specialty or by categories that cross specialties would have to be made.

i.e. Pathology 10

Minor categories:	10 - 01	Hematology
	10 - 02	Immunohematology
	10 - 03	Chemistry
	10 - 04	Microbiology
	10 - 05	Immuno serology
	10 - 06	Histopathology
	10 - 07	Cytology
	10 - 08	Miscellaneous

i.e. Consultations 04

Minor Categories	04 - 01	Formal major consult
	04 - 02	Minor consult
	04 - 03	Repeat consult
	04 - 04	Interspecialty consult no transfer
	04 - 04	Interspecialty consult-patient trans.
	04 - 05	General practice
	04 - 06	Other

4. Subcategories

Within minor categories groups of related services or high volume services can be identified optionally.

i.e. Pathology 10 - Hematology 01

Subcategories:

10-01-01	Routine
10-01-02	Peripheral smear and bone marrow
10-01-03	Coagulation
10-01-04	Other

i.e. Consultation 04 - Formal Major 01

Subcategories:

04-01-01	Internal medicine
04-01-02	Dermatology
04-01-03	Gastroenterology

5. Profiles

Within subcategories there may be specific services that can be selected as profiles for utilization review. They may represent high volume services or services undergoing rapid growth. They can be redeveloped periodically without affecting the broad categories and subcategories already established. It will be at the profile level that specific services are monitored.

i.e. Laboratory 10 Hematology 01 Coagulation 03

10-01-03-01 Prothrombin Time and Partial Thromboplastin Time
10-03-02-04 M-12
M-12
Blood profiles
Chemistry
Pathology

i.e. Surgery 05 Ophthalmology 08 Lens 09

Profile 05-08-09-01 Cataract with lens implant
Cataract with lens implant P83A
Subcategory lens
Minor category Opthalmology
Category Major Surgery

6. **Sample Breakdown**

A proposed breakdown for Pathology would be as follows:

Category Laboratory 10

Minor Categories	Subcategories	Profiles
01 Hematology	01 Routine	
	02 Periph.Smear & B.M.	
	03 Coagulation	01 PT & PTT
	04 Other	01 Hb typing
02 Immunohematology	01 All	
03 Chemistry	01 Blood Routine	01 Single procedure-M12
		02 Glucose + GTT + Stix
	02 Blood Profiles	01 Hematinic factor
		02 Lipids
		03 Electrolytes
		04 M-12
	03 Blood Endocrine	01 Thyroid
		02 RIA
		03 Other
	04 Blood Drugs&Toxicology	01 Anticonvulsants
	05 Blood Other	
	06 Urinalysis	
	07 Urine Routine	
	08 Urine Endocrine	01 Pregnancy test

	09 Urine Drugs & Toxic.	
	10 Feces	
	11 Other body fluids	
04 Microbiology	01 Bacterial	01 Routine culture
		02 AB sensitivity
	02 Tubercle bacilli	
	03 Parasitology	
	04 Mycology	
	05 Virology	
	06 Skin tests	
05 Immuno Serology	01 Bacterial	
	02 Viral	01 Rubella
		02 Hepatitis
	03 RPR	
	04 Other	
	05 Autoantibodies	
06 Histopathology		
07 Cytology	01 Cytologic smear	
	02 Fine needle aspiration	
	03 Other	
08 Miscellaneous	01 ECG Technical	
	02 Spec. procurement and handling	
	03 In Vivo Diagnostic Isotopes	
	04 Karyotype	
	05 Unlisted	
	06 Other	

UTILIZATION OF MEDICAL SERVICES

LEVEL 3: DETAILS OF UTILIZATION COMMITTEE STUDIES AND FINDINGS

Prepared by

Dr. D. G. Young

and the Utilization Committee

September 1985

LEVEL 3

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1.0 **INTRODUCTION**

By 1984 both government and the public became concerned about the increasing utilization of health care services. The issue of increasing demand for services when those services are funded from finite resources caused the Minister of Hospitals and Medical Care to take action.

To determine the impact of medical services on utilization, the Minister of Hospitals and Medical Care established the Utilization Committee in September of 1984. The committee membership included four members from the medical profession and three from the Department of Hospitals and Medical Care.

The terms of reference required that the Utilization Committee identify factors contributing to the increased utilization of physician services and diagnostic services, per resident of Alberta, during the period 1980-1984 as reflected in billings by physicians to the AHCIP. The Committee report, requested for September of 1985, in addition to identifying the above factors, was to advise the Minister on steps government could take to reduce or restrain future growth in utilization of medical and diagnostic services.

The Committee's initial meeting in September of 1984 took place in a highly charged political climate. The economic recession was at its low point. The Canada Health Act was being implemented. Although Canadians and Albertans agreed that our health care system was second to none world-wide, there was emerging concern that the demand for services dependant on finite financial resources for their provision would endanger what had been achieved. The breakdown in the established pattern of communications between the profession as represented by the A.M.A. and the government, the controversy over balance billing and the demands of various other professional and consumer groups contributed to this charged atmosphere.

2.0 BACKGROUND

2.1 DATA

Alberta Hospitals and Medical Care Expenditures over the five year period 1979-1983 increased 139.6% from $996 million to $2,387 million, the greatest increase being 36.2% in 1982. Although part of this increase was in response to inflation, the economic recession which started in 1981, accompanied by a reduction in population growth which began in 1982 with no growth in 1984, suggested other factors may be operational in increasing utilization.

Medical services per thousand registrants of the Alberta Health Care Insurance Plan increased 18.9% over the five years, 1979-1983, with an increase of 9.57% in the year 1982. This increase focused attention on physicians services as a possible major contributing factor in increasing utilization. That the increase in services per thousand registrants continued at 6.42% in 1983-84 was a further concern. Preliminary data for 1984-85 suggest that this rate of increase has not appreciably changed (1984-85 - 6.16%).

The delineation of measurable facts was necessary before any response to the problems of increasing utilization could be made. This was apparent early to the committee and prompted its decision to confine its studies to data from AHCIP supplemented by other necessary information or communications. No statements were to be issued prior to the filing of this report.

2.2 MYTHS

Government, professional and public concern over escalating health care costs; the perception that the increase in medical services in particular was excessive, and the threat posed to preservation of medicare in the absence of agreed upon measurement of the factors generating utilization increases; resulted in many explanations being offered.

Some of the reasons postulated for the utilization increases were: too many patients doctor shopping; too many demands by patients having no direct financial responsibility; too many doctors; doctors covering their actions for fear of lawsuits; the advent of walk-in clinics; too many hospitals; too many hospital beds; not enough home care services; physicians earning too much; physicians sacrificing quality care for economic gain; too few home visits, etc.

Although each of the above at one time or another are interesting and served as a basis for media conducted debates, they shed little light on the underlying issue.

The analysis of medical services which follows will attempt to illuminate underlying issues by examining and basing conclusions on actual data, clearly indicating when there are considerations not measured or not measurable.

2.3 OTHER CANADIAN EXPERIENCE

Escalating health care costs during the period of study occurred across Canada. Lack of uniformity in provincial reporting systems makes comparisons difficult.

Figure 1 shows total Canadian and U.S. health care expenditures as a percentage of the Gross National Product, 1960 - 1982. Following the implementation of Medicare in Canada in 1969, Canadian health care expenditures remained stable at 7-7.5% of the GNP until 1980 when they increased, reaching 8.4% in 1982. A fall in the GNP after 1980 in part explains this increase.

The United States percentage for health care of the GNP, compared to the Canadian data, illustrates a continued rise in the percentage from 1970 to 1980. An acceleration in the rate of increase in the percentage after 1980, similar to the Canadian experience, again can be related in part to a decline in the U.S. Gross National Product.

Data available to the Department of Hospitals and Medical Care from Health and Welfare Canada on medical services and medical service payments for the provinces and for all of Canada allow comparison of trends in utilization. The data are based on services which are units of remuneration for provincial Schedules of Medical Benefits, so are not fully comparable between provinces. Caution is required in drawing conclusions. Services paid to pathologists and radiologists are not included in the Canadian data due to a gross lack of comparability between provincial data.

With the above reservations in mind, a comparison of total services per thousand registrants excluding the categories Pathology, Radiology and Miscellaneous can be made between Alberta and all of Canada.

Table 1

Services /1000 Registrants Excluding
the Categories Pathology, Radiology and Miscellaneous

	1979	1980	1981	1982	1983
Alberta	5,171	5,151	5,118	5,590	6,208
Canada	6,399	6,535	6,581	6,904	7,042

Alberta data from Table 9.
Canada data from Health and Welfare Canada

Figures 2 and 3 graphically indicates the yearly increases in services and payments per thousand population and registrants excluding the categories Pathology, Radiology and Miscellaneous to 1979-80. The sudden increase in services in 1982-83, preceded by a low rate of increase in 1981-82, occurred in all of Canada, not only in Alberta. The changes in population growth rate and age distribution were different for Alberta as opposed to all of Canada, therefore other factors must have been operative nationally, influencing Alberta utilization.

To identify these factors specifically would be difficult other than to postulate a relationship to the economic downturn that started in 1980-81.

Services per thousand registrants in Table 1 shows Alberta significantly below the Canadian average. Other data indicate comparable services per thousand registrants for Alberta to rank eighth out of the 10 provinces. Whether this reflects different definitions of services between provinces, or is a genuine lower rate of utilization of services, could not be determined.

Findings - Other Canadian Experience:

1. **The sudden increase in medical service utilization in 1982-83, preceded by a low increase in 1981-82 occurred both in the province of Alberta and all of Canada.**
2. **Factors operating nationally, rather than in Alberta only, were operative, probably related to the economic downturn.**
3. **Services per thousand registrants in Alberta are lower than most Canadian provinces, although total payments for medical services are at or above average.**

3.0 DEFINITION OF TERMS

3.1 UTILIZATION

AHCIP medical service expenditures result from billings for services by physicians. The services and their cost are determined by the Schedule of Medical Benefits as negotiated by the A.M.A. and the Department and published by the AHCIP. The utilization of individual services is dependant on medical necessity, numbers of patients and physician practice patterns.

3.2 SERVICES

A medical service is defined as the unit for payment by AHCIP. Services as described by the Schedule of Medical Benefits, when used as a measure of utilization, can lead to misinterpretation unless their definition is taken into account. The fact that there are 4,215 services codes defined in the Schedule of Medical Benefits makes their monitoring a monumental task.

Services as defined do not have a relative value other than for the fee for each service which incorporates weighting factors to assure equitable distribution of incomes to various physician groups. Examples of individual services (each counted as one) illustrate how they vary: urinalysis; office visit; coronary artery bypass; obstetrical care, which includes prenatal, confinement and post natal care; and tray fee. The tray fee, while a service by the AHCIP definition, is actually reimbursement for necessary supplies required in the performance of other office services. These examples illustrate how Schedule of Medical Benefit services vary in time, skill and operational support required. Furthermore, many do not relate to medically defined problems, e.g. office visits, urinalysis: whereas others do, e.g. coronary bypass surgery.

Identical services performed in hospitals by salaried or contracting physicians are not recorded as such resulting in an unknown but probably significant additional numbers. The unit system (StatsCan) used in hospital reporting is not comparable to AHCIP services and does not include physician services.

Services can be arbitrarily divided into patient generated, e.g. office visits, house visits, obstetrics, and physician generated, e.g. consultations, hospital visits, surgery, anaesthesia and diagnostic services.

Services as defined in the Schedule of Medical Benefit emphasize procedures, there being limited provision for remuneration of time required for "care of patients"; explaining, reassuring, answering questions, counselling, which may account for a significant part of a physician's time. It is difficult if not impossible to measure this bias and its impact on the quality of care.

3.3 PATIENTS - REGISTRANTS - POPULATION

In using indices of utilization, such as services per registrant, care must be taken to distinguish discrete patients seen by physicians, numbers of registrants in AHCIP, and provincial population during the defined period of study. In 1982 the AHCIP had considerably more registrants than the official Alberta Bureau of Statistics population figure. Over the five year study period the proportion of discrete patients using the Plan on a yearly basis varied up to 3-5% when compared to registrants.

3.4 PHYSICIANS

Not all physicians in the province bill AHCIP, some being salaried or on contract to other paying agencies. Also, not all physicians bill equally, depending on their activity, e.g. starting practice, close to retirement, or a proportion only of their practice under AHCIP. Furthermore, the inclusion of pathologists and radiologists who, by the mechanism of AHCIP's operation, may bill for a laboratory which includes other pathologists or radiologists not counted, distorts ratios with services. When taken with the variation between defined services the potential distortions introduced become apparent.

3.5 PAYMENTS

The committee's study being confined to the utilization of services and not their dollar value, expenditure figures are given in this report for reference only.

3.6 DATE OF PAYMENT VS. DATE OF SERVICE

Inclusion of services in a given time period can be on the basis of the date the service is rendered, or date payment is made. Date of payment data allow for earlier reporting, whereas date of service data are not available for some 9 months due to the billing process.

Although turnaround time for payments is now fairly constant, there were periods when delays occurred, potentially distorting sequential yearly payment data. Suspicion that this occurred in 1982-83 prompted comparison of date of payment vs. date of service data by the Department. This indicated that the total values were very close. Services per thousand registrants in 1982-83 were 8,632 by date of payment and 8,562 by date of service. For 1983-84 the comparable figures were 9,248 and 9,112.

The Committee's detailed category studies used date of service data but some financial data used in this report, available on date of payment basis, was retained to avoid expensive recalculation for limited benefit. Tables indicate whether the data is date of service or date of payment.

4.0 PERSPECTIVES

4.1 SUMMARY

Figure 4 graphically illustrates the increases in expenditures and services indexed to 1979-80. From 1979-80 to 1981-82 the increasing costs were almost entirely due to Schedule of Medical Benefit increases and population growth. The striking escalation in 1982-83 in expenditures was contributed to by increases in services per thousand registrants, the increase continuing into 1983-84 and not falling back to the pre 1982-83 levels. Using services per discrete patient rather than per registrant indicates a lesser rise in utilization, but still a significant increase. This abrupt increase in utilization of services per patient and resident, exceeding the average -2% to 3.6% increase that had occurred prior to 1982 (Table 2) is of major concern to government. Preliminary data suggests that this accelerated rate of increase has not entirely abated. In 1984-85, the fact that the increased services per registrant in previous years have been retained suggests that the increase of 1982 to 1984 are changes in practice patterns.

4.2 TOTAL HEALTH CARE COSTS

Over the five year period April 1, 1979 to March 31, 1984, Department expenditures (on a date of payment basis) increased 139.6% to $2.387 billion. (See Table 3 and Figure 5) If capital construction is eliminated from the expenditures the increase was 123.4%. Acute care hospitals operating costs, which account for 50.3% of expenditures, increased 129.7% whereas AHCIP expenditures, which were 26.7% of costs, increased only 111.7%. (See Table 4 for AHCIP expenditures, which include medical service expenditures, the subject of this report.)

Medical services, which in 1983-84 were 20.2% of the total costs increased 107.3% over the five year period. For the four years 1979-80 to 1982-83 the increase in acute care hospital operating costs was always greater than medical services and health care insurance expenditures, whereas in 1983-84 the medical services increase of 9.5% was greater than the acute care hospitals 8.6%, reflecting budgetary restrictions imposed on hospital operation.

During the five year period the proportion of AHCIP expenditures as a % of Department of Hospitals and Medical Care expenditures decreased from 30.2% in 1979-80 to 26.7% in 1983-84. This decrease was in part due to the increase in capital construction expenditures. Similarly, medical services decreased from 23.3% of Department expenditures in 1979-80 to 20.2% in 1983-84.

In determining total health care costs, one must add to the $2.387 billion expenditure of the Department in 1983-84 the Alberta Heritage Trust Fund monies used for capital construction and support of other health care programs, as well as the Community Health portion of the Department of Social Services and Community Health expenditures.

4.3 MEDICAL SERVICES AND COSTS

During the five year study period medical services increased 32.9% to 22,271,637 in 1983-84. Payments for these services increased 106.6% to $469,277,195 in 1983/84 (Table 5). The yearly increases in services were between 5.6% and 7.0% except for 1982-83 when they increased 11.4% over 1981/82.

Similarly, the maximum increase in payments for medical services was 26.9% in 1982-83, increases in the preceding two years being 19.5% and 24.7% with the increase in 1983-84 decreasing to 9.23%. A significant proportion of the increase between 1980 and 1983 is attributable to the Schedule of Medical Benefit increases. The 0% increase in Schedule of Medical Benefit payments in 1984 is in part responsible for the decline in the rate of increase.

4.4 SERVICES PER THOUSAND REGISTRANTS

Table 2 is taken from the 1983-84 Annual Report of the AHCIP (Table 2, page 24). Total services per thousand registrants for the years 1973-74 to 1981-82 showed changes of +3.97% to -2.06% yearly. The abrupt increase of 9.86% in 1982-83 and a further 7.14% in 1983-84 without further study suggests that a part of the increasing expenditures in health care in these years was a genuine increase in medical service utilization, independent of population growth. The fact that such a sudden increase could occur for unexplained reasons and the lack of means to predict whether this would be a continuing or recurring trend was a major problem identified for the Utilization Committee. Preliminary data for 1984-85 indicates services per thousand registrants increased 6.2% over 1983/84 (Table 6). Preliminary data for the number of services in 1984-85 is referenced in Table 7.

5.0 ANALYSIS OF MEDICAL SERVICES DATA

5.1 GROUPING OF CATEGORIES

5.1.1 Introduction

Committee members spent many hours reviewing data from each of the 4,215 codes. The following summary highlights the major findings with examples. Given the number of codes, it is not possible to detail each one.

Problems were encountered in the comparison of related medical services whose codes were assigned to different categories. The example of different codes for skin biopsies or excisions distributed between the category Minor Surgery and the category Other Diagnostic will be illustrated later in the report.

Table 8, Services per Thousand Insured Residents, shows a decrease of 26.1% in House Visits in 1982/83. This was due to a benefit code change in 1982 prior to which A29's, Call Back to Hospitals, had been assigned to the category House Visits. In 1982 A29 was divided into A29A and B which are time related and these were assigned to the category Hospital Visits. When A29, A29A and A29B benefit codes are assigned to the category Hospital Visits (Table 9), the five year decrease in the category House Visits was only 5.6% rather than the previously reported 41.7%. The increase in Hospital Visits of 3.6% in the original table was actually a decline of 3.6% over the five year period.

5.1.2 Medical Service Growth Characteristics During the Study Period

From 1979-80 to 1981-82 medical services grew at the rate of between 5-7% per year. (See Figure 6) In 1982-83 there was an increase of 11.4%, falling back to 5.6% in 1983-84. If the 1982-83 accelerated growth rate was due to clustering of services in 1982-83 the 1983-84 numbers should have fallen back (line B). The fact they did not suggests the added services in 1982-83 represent a change in practice patterns carried into 1983-84.

Figure 7 illustrates individual categories showing services indexed to 1979-80. Registrants to AHCIP indexed to 1979-80 are also shown on Figure 7 for comparison. The relationship of services to registered patients and populations will be discussed under Medical Indices.

Table 10, for each category, gives the average yearly increases and increases per thousand registrants with the 1982-83 increase. For perspective, it also shows the proportion of services and payments in each category. The order of category listing is based on the relative magnitude of the five year increase.

From Table 10 and Figure 7 the categories can be divided into three major groups: Office Visits, those whose increases are greater than Office Visits, and those with a lower increase than Office Visits.

The category Office Visits accounts for 39.8% of services and 40.3% of payments in 1983-84. The rate of increase of Office Visits parallels the increase in registrants until 1982-83 when there was a continued increase despite minimal growth in registrants. Office Visits are recorded with unreliable data to indicate their medical basis, precluding detailed analysis. Nevertheless, they are a significant indicator of the entry of registrants into the system. Their average yearly increase per thousand registrants was 3.8% over the study period.

The second group, categories which increased at an average yearly rate greater than Office Visits, accounted for 44.5% of medical services. Consultations, Pathology, Other Diagnostic and Minor Surgery, which are largely physician-generated services, accounted for 44.5% of medical services. They increased at a rate faster than Office Visits although the trends of yearly increase (Figure 7) are similar. The Miscellaneous category represents only 1.1% of services and 75.1% of its services are tray fees (A60-61) so it can be grouped with Minor Surgery. Although these categories represented 44.5% of medical services in 1983-84 they account for only 31% of total payments. This reflects the definition of pathology services which are more specific and have a lower per service cost than other categories, i.e. urinalysis vs. office visits.

The third group of categories which grew at a rate less than Office Visits includes Anaesthesia, Major Surgery, Obstetrics, Surgical Assists, Hospital Visits, Radiology and House Visits. Together they account for 15.8% of total medical services but 28.7% of medical payments, reflecting again the lack of comparability of services. They include patient-generated Obstetrics and House Visits, the remainder being largely physician-generated. Table 11 summarizes this breakdown.

Table 11

GROUPS OF CATEGORIES BASED ON RATES OF INCREASING SERVICES

Categories	% of Medical Services	% of Medical Payments
Consultation, Pathology, Other Diagnostic and Minor Surgery	44.5%	31%
Office Visits	39.8%	40.3%
Anaesthesia, Major Surgery, Obstetrics, Surgical Assists, Hospital & House Visits, Radiology	15.8%	28.7%

Source - Utilization Data Base

The rate of increase in all categories was greatest in 1982-83 (when Miscellaneous is included with Minor Surgery), suggesting the accelerated rates of increase were multi-factorial.

Figure 8 portrays services per thousand registrants and is taken from the table on page 24 of the 1983-84 AHCIP Annual Report which is on a date of payment basis. This index corrects for population growth and extends back to 1974 giving further perspective.

Prior to our five year study period the category Other Diagnostic had decreased and prior to 1978 Pathology and Consultations paralleled Office Visits. After 1978 growth in Pathology and Consultations was at double the rate of Office Visits. Over the 10 years Office Visits increased 40.6% whereas Pathology and Consultations increased approximately 90% per thousand registrants. Of interest, Minor Surgery paralleled Office Visits in services per thousand registrants.

Interpretation of the data over our five year study period must be made in the light of trends established in the preceding years, in particular since the advent of Medicare in 1969.

5.1.3 **Medical Services Performed in Hospitals Not Funded by AHCIP**

No quantitative data on equivalent hospital services not under AHCIP, particularly in the Diagnostic and Surgical categories, could be obtained. We are thus unable to establish total medical services for the Alberta population. The absence of this information softens somewhat conclusions on utilization from AHCIP data.

5.1.4 Specific Category Analyses

Following are analyses of each category with attempts to delineate where these increases occurred. Misleading impressions are gained by the selection of the benefit code assignments to categories. The fact that Radiology shows limited growth in part is due to the fact that ultrasound has been assigned to Other Diagnostic rather than Radiology. Similarly, Other Diagnostic contains a variety of services that relate directly to Surgery, Minor Surgery, Obstetrics and Radiology, distorting somewhat the categories but not negating the general trends noted above.

5.2 THE CATEGORY OFFICE VISITS

5.2.1 A1, A2, A4

Table 12 - Category Office Visits

Services in millions - % yearly increase

	79-80	80-81	81-82	82-83	83-84	5 Yr. % Increase
Total Services	6.827	7.275 (6.6%)	7.647 (5.0%)	8.449 (10.6%)	8.854 (4.8%)	29.7
A1	0.458	0.505 (10.2%)	0.566 (12.1%)	0.629 (11.8%)	0.592 (-5.9%)	20.2
A2	3.075	3.344 (8.7%)	3.508 (4.9%)	3.931 (12.1%)	4.315 (9.8%)	40.3
A4	1.153	1.153 (0.04%)	1.192 (3.4%)	1.267 (0.3%)	1.289 (1.7%)	11.8
Total(A1, A2 & A4)	4.686	5.002 (6.7%)	5.266 (5.3%)	5.827 (10.6%)	6.195 (6.3%)	32.2

Source - Utilization Data Base

Note: Preliminary data for 1984-85 indicates an increase in the total for the category of 3.0% over 1983-84.

The category Office Visits showed a 29.7% increase in services over the five year study period. In 1982-83 the increase was 10.6% over the previous year, other yearly increases during the study being 4.8 to 6.6%. Since A1, A2 and A4 include 70.0% of all of the category Office Visits, they have been tabulated above.

A1 - first visit with complete workup, A2 - first visit new illness not requiring complete workup, and A4 - subsequent visit, together show yearly percentage increases almost identical to the total category. A3 - minor condition, first visit, is less than 1% of the total office visits and not included in the table.

The table shows that the 1982-83 increase was mainly in A2's. The code A1 increased uniformly from 1979-80 to 1982-83, with a slight decline in its rate of increase in 1982-83 over 1981-82. This decline increased in 1983-84 suggesting a shift to more A2's which increased 9.8% in 1983-84.

The lesser increase in A4's suggest fewer return visits over the study period, or possibly a shift in the code used among the three codes. Many physicians have laboratory services on site, allowing for immediate evaluation of laboratory results and reducing the need for a subsequent visit.

Walk-in clinics use the A2 code which may have contributed to its disproportionate increase continuing into 1983-84.

The reason for the decrease in A1's in 1983-84 is not apparent.

Office Visits represent the entry of patients into the health care system and are largely patient-generated, although some are physician-generated. The exact proportions cannot be determined.

Physician attention to correct billing procedures, including previously excluded services, could contribute to this increase. The development of larger group practices, with hiring of clinic managers, and the implementation of automated billing and patient files could certainly improve the capture of previously missed services.

5.2.2 1982-83 Acceleration of Utilization Increase:

The rate of increase in the category Office Visits, and in the A1, A2 and A4 codes was almost double 1982-83 compared to the other study years. Contributory factors may have been the improved billing practices accentuated by the confrontation with government in late 1981 in anticipation of future zero percent increases in the Schedule of Medical Benefits. The recommendation came at that time that prescriptions not be filled by telephone, but only following an office visit.

The discussion of indices later in the report indicates a sudden 3-4% increase in the number of discrete patients using AHCIP in 1982-83, a significant contributor to increased office visits. The 3-4% increase in discrete patients in 1982-83 would increase services by an estimated 2-3%.

The major acceleration in the benefit code A2 in 1982-83 with the fall in the increase of A1's is difficult to explain. The possibility that walk-in clinics contributed must be considered. Whether this is just an anomaly of the year 1982-83 or represents a change in practice patterns can only be determined by monitoring future data.

5.2.3 Other Office Visits

A27 - annual routine medical exam - A27's increased 95% during the five years, representing 2% of the category Office Visits in 1983-84. Almost half of this increase occurred in the year 1982-83 (42.1%). Such an increase, although in part medical necessity, may also reflect a change in practice patterns or billing procedures.

A27 - A, B and D - These three codes, while only 1.1% of total office visit services in 1983-84, showed significant increases over the five year period. A27A, premarital examination and counselling, increased 62.7%, A27B, contraceptive counselling, increased 199.9% and A27D, senior citizens' driver exam, increased 44.6%. None of these codes showed an accentuation in 1982-83. Although small in proportion to the total office visits, their rapid increase may again reflect changes in the billing patterns of physicians.

A26 - psychotherapy by appointment - Increased 61.9% representing 3.4% of total office visits in 1983-84. The maximum rate of increase of 23.8% was in 1982-83. It is conceivable that counselling previously given gratis is now being considered psychotherapy, and given on an appointment basis. This is within the guidelines of the Schedule of Medical Benefits. As mentioned earlier, care of the patient involving such counselling is a time consuming part of a physician's practice not well compensated in a procedure-oriented Schedule of Medical Benefits.

A30-31 - emergency room duty - Increased 37.7% over the five years, although in 1983-84 there was a decline of 2.5% from the preceding year. This significant increase reflects the introduction of planned changes in the use of emergency rooms during the study period. Conceivably, the decline in 1983-84 may represent the impact of walk-in clinics.

Other codes represent small portions of Office Visits, many falling significantly in numbers. Exceptions were R20, internist repeat visit of referred patients, which increased 59.2% to 79,024 services in 1983-84 (less than 1% of total); T20, pediatrics, which increased 104.3% to 8,183 services in 1983-84; V602, physical medicine first visit not requiring full exam, which increased from 136 tc 3,253 services in the five years.

5.2.4 Findings - Office Visits

1. **The 29.7% increase in Office Visits must be interpreted in the light of the 15.8% increase in discrete patients using AHCIP over the study period.**

2. **The most significant and sustained rate of increase was in office visits not requiring complete exam (A2) with a decline in first visit complete exam (A1) in 1983-84.**

3. The accelerated rate of increase of the category Office Visits in 1982-83 would appear to be related to increasing numbers of discrete patients using AHCIP, the advent of walk-in clinics, and more precise use of the Schedule of Medical Benefits by physicians.

4. Possible shifts in practice patterns are reflected in disproportionate increases in annual physical exams, contraceptive counselling and premarital examinations.

5. A significant acceleration in scheduled office psychotherapy may reflect formalization and billing for counselling previously given gratis.

5.3 SERVICE CATEGORIES INCREASING AT A RATE GREATER THAN OFFICE VISITS

5.3.1 Introduction

In this section the categories Consultation, Pathology, Other Diagnostic and Minor Surgery will be reviewed in detail.

Since the advent of Medicare in 1969 the government, in cooperation with the medical establishment, has generously supported the improvement in the quality of care. Initial expenditures on capital equipment and construction have been complemented by the increase in numbers of general practitioners and specialists. This manpower growth was complemented by an explosion in the availability of space age technology. This resulted in increased numbers of physicians having at their command a greatly improved armamentarium for diagnosis, monitoring and treatment of disease.

Prior to the implementation of Medicare, patients and practicing physicians experienced first hand the need for economic restraint in the absence of third party payers. Younger patients and physicians whose practices started after the advent of Medicare are only recently encountering the need for economic restraint as a result of escalating third party (government) costs. This expanding portion, both of the patient and physician population, has little understanding of cost control and cost effectiveness.

5.3.2 The Category Consultations

Consultations increased yearly at a rate of 8-9% except for 1982-83 when they increased 15.8%. The 1982-83 peak may in part be explained by the effects of bed closures and the nursing strike in 1981-82.

A significant portion of consultations occur in hospitals but no breakdown was available for the study years. This is now being specified in recent billings. Although each consultant's practice varies, for consultants in major metro hospitals up to 60% of their consultations may be hospital generated.

Consultations by salaried or contracting physicians are not counted. Whether their addition to the AHCIP figures would increase or decrease the rate of utilization of consultant services cannot be measured. Initial major consultations increased as follows:

Table 13

Initial Consultations

Peak Year			% of Total 1983-84	5 Year % Increase
1981-82	R1	Internal Medicine	16.8%	68.4%
1981-82	P1	Ophthalmology	5.9%	71.0%
1981-82	Q1	Plastic Surgery	1.4%	246.3%
1981-82	T1	Pediatrics	5.7%	77.2%
1981-82	U1	Dermatology	6.0%	369.8%
1981-82	V1	Physical Medicine	0.3%	138.7%
1982-83	Z1	Neurology	3.6%	58.2%
1982-83	L1	Orthopaedics	6.8%	56.6%
1981-82	K1	General Surgery	5.9%	57.2%

Source - Utilization Data Base

Internal medicine major consultations increased at double the rate of all AHCIP services. Although small in proportion, significant increases for dermatology, plastic surgery and physical medicine represent the planned coming on stream of subspecialists and enhance the quality of care.

Consultations showed a peak rate of increase in 1982-83 of 15.8% whereas in 1981-82 it was only 8.8%. Despite this, the table shows many specialties peak in 1981-82, reflecting in part consultants entering practice during different years.

A80, mandatory consultation for obstetric and gynecologic procedures, started in 1982-83 accounted for 1.4% of consultations in 1983-84.

A change in billing rules made during the study period, allowing charges for a consultation and some procedures on the same day, may also have contributed.

Findings - Consultation Increases:

1. **Consultations in 1982-83 doubled, possibly reflecting the 1981-82 construction closures and hospital nurses' strike.**

2. **More consultants entering practice contributed to the increase in services, reflecting planned growth. Medical specialists entering practice tended to cluster in 1982-83**

possibly contributing to the sharp increase in services in that year.

3. Other contributory factors were:

    a) Mandatory consultations in obstetrics and gynecology
    b) Onset of rule change allowing consultations and procedures to be billed on the same day.
    c) The trend towards a team approach to patient care by multiple subspecialists.

4. To what degree consultations have increased due to peer pressure, patient pressure or assurance against potential lawsuit cannot be measured, although these factors may contribute.

5. The impact on increasing utilization of uncounted consultations by salaried or contracting physicians cannot be measured.

6. In the opinion of the Committee, the increasing use of consultants is a positive step in improving the quality of care to Albertans.

7. Referring physicians must assure each consultation is necessary.

5.3.3 The Category Pathology

The request for emphasis on pathology utilization prompted a more detailed review of this area, the category study being supplemented by other reports.

Pathology services as a percentage of total AHCIP services increased from 29.1% in 1979-80 to 30.9% in 1983-84 whereas payments as a percent of total AHCIP payments increased from 12.6% to 15.0% over the same five year period.

The yearly rate of increase averaged 9.8%, varying from 7.4% in 1983-4 to 12.7% in 1982-83. In the prior three years, 1976 to 1978, significant increases occurred indicating that the trend to increasing laboratory services started prior to the study period.

As noted from Figure 8, Pathology services per thousand registrants have increased 89.8% in the 10 year period 1974-85.

Location of Performance of Pathology Services

To test the hypothesis that there has been a shift in the place where pathology services are performed, four categories of laboratory work were examined: Laboratory work done in physicians' offices; laboratory work in hospital laboratories; laboratory work in the Provincial Laboratory; and laboratory work in private laboratories funded by AHCIP.

a) Physician Offices vs. Pathologist Operated Laboratories

It has been postulated that an increasing proportion of laboratory services are being carried out in the physician's office. In order to test this hypothesis, total services were broken down into those performed in pathologist operated laboratories and those in laboratories operated by non-pathologists. The following table summarizes the results.

Table 14

Pathology Services - Pathologist vs. Non-Pathologist

	Pathologist	Non-Pathologist
% of Services 1979-80	86.6%	13.4%
% of Services 1983-84	88.3%	11.1%

Source - AHCIP Date of Payment Data

Over the five year period the share of services generated in non-pathologist laboratories decreased indicating that physicians are not expanding office testing as a means of increasing income, but rather are increasing the proportion of lab work referred to pathologist operated laboratories.

b) Metro-Urban-Rural

It has been suggested that rural practices, to avoid delays in turn around time of result reporting, may be increasing on site testing.

Data was generated for a comparable sample of rural, urban and metro practices as to percent of lab work performed and billed on site. The table summarizes the results.

Table 15

Site of Pathology Services

	% of Lab Work Performed on Site	
	1979-80	1983-84
Rural	31.1%	27.6%
Urban	11.3%	9.6%
Metro	4.6%	2.8%

Source - AHCIP Date of Payment Data

In each area there was a decrease in the proportion of tests performed on site with almost all laboratory work by metropolitan physicians being referred out.

c) Shift from Hospital Sector to AHCIP

Hospital laboratory services are documented in StatsCan Units which reflect only technologist time and are not fully comparable to services as defined in the Schedule of Medical Benefits. The out-patient units for acute care hospitals were obtained for the study period as reported to the Department of Hospitals and Medical Care to see if there has been a shift from the use of hospital out-patient lab services. Unfortunately, during the period of the study StatsCan Units weighting values changed, the data used being adjusted to assure comparability between years.

Table 16

Comparison - AHCIP Pathology Services with Hospital Out Patient Services

	AHCIP Pathology Services (millions)	Acute Care Hospital Outpatient Adjusted Laboratory Units (millions)
1979-80	4.735	29.109
1980-81	5.222 (10.3%)	30.879 (6.4%)
1981-82	5.683 (8.8%)	31.806 (3.0%)
1982-83	6.403 (12.7%)	33.771 (6.2%)
1983-84	6.873 (7.3%)	33.991 (0.7%)
5 yr. increase	45.2%	16.7%

Source - Division of Hospitals and Medical Care

The increase in AHCIP pathology services of 45.2% is almost three times greater than the hospital out-patient units. Despite the soft nature of the comparability of services and units it would appear the AHCIP pathology services have increased more rapidly during the study period. According to the data physicians are using AHCIP funded laboratories more frequently than hospital out-patient departments. The fall in hospital Emergency Room usage, with the growth of walk-in clinics, would corroborate this. The low growth in hospital out-patient visits in 1983-84 may reflect budgetary restrictions.

d) Provincial Laboratory of Public Health vs. AHCIP Funded Laboratories

Over the five year period of the study Provincial Laboratory specimen volume fell 4.4%, corresponding to reductions in Provincial Laboratory global budgets and staff. This compares to a 63.1% increase in AHCIP funded microbiology services.

Provincial Laboratory volume data in terms of specimens examined on a calendar year basis, 1979-1984, was provided by the Department of Social Services and Community Health. Table 17 is a summary of comparable volumes of microbiology services under AHCIP and specimens as recorded in the Provincial Laboratory data.

A breakdown of the data as illustrated in Table 17 shows the following:

a) Provincial Laboratory bacterial cultures decreased by 16.7% over the five years whereas AHCIP funded cultures increased by 64.4%.

b) Cultures for Tubercule bacilli remained constant in both sectors.

c) Parasitology specimens increased 12.9% at Provincial Laboratory and AHCIP funded parasitology services 135.1% with AHCIP funding three times the number of services in 1983-84 as the Provincial Laboratory.

d) Syphilis serology decreased 31.2% in the Provincial Laboratory but increased 45.0% for AHCIP services. Of interest, the combined numbers of serologic procedures for syphilis decreased -15.4% over the five year period.

e) Rubella serology increased 17.5% at the Provincial Laboratory but 93.4% with AHCIP, Provincial Laboratory having 55.4% of the services in 1983-84.

f) Virology, which due to its complexity is largely a Provincial Laboratory function, increased 73% in specimens handled by the Provincial Laboratory over the five year period.

On the basis of the above, the following conclusions were drawn.

a) Over the study period, Provincial Laboratory specimen volume fell slightly with a significant decrease in bacterial cultures and syphilis serology, compensated for by an increase in virology.

b) AHCIP bacterial cultures and syphilis serology services during the same period increased 65% and 45% respectively.

c) Despite the fact the Provincial Laboratory receives the bulk of its work from hospitals and health units, the restraints imposed on its global budget have contributed to a disproportionate increase in AHCIP microbiology services. These have absorbed both a shift in microbiology workload, an increase in the population growth and increased utilization.

d) Turn around time of specimens sent to Provincial Laboratory has been adversely affected by budgetary restraints, resulting in the increasing utilization of independent laboratories with a more rapid turn around time.

e) Budgetary restraints in one sector result in a shift of work to other sectors not undergoing restraints.

Summary of Location of Pathology Services

A documented shift in bacterial cultures and serology occurred from Provincial Laboratory to AHCIP funded services related to budgetary restrictions in the Provincial Laboratory. Similarly, hospital budgetary restrictions curtailed the ability of hospitals to absorb new work. The interdependence of hospital, private sector and Provincial Laboratory means restrictions applied to one result in increases in the service load of the others. The Committee was concerned about the lack of communication among these three areas.

Physicians' office testing and rural practice locations did not change appreciably over the study.

Review of Pathology Services

There are a total of 416 pathology services. Of these, 17 accounted for 66.2% of total services in 1983-84. We will first examine these 17 basic laboratory services, then in the following section, factors affecting growth rates of the remaining 399.

Basic Laboratory Services

Table 18 indicates the top 17 basic services by volume for 1983-84 with the percentage of total pathology services and the percent increase over the five years of the study. Table 18A summarizes this comparison. Figure 9 illustrates growth graphically.

Table 18 (Summary)

	% of Total Pathology Services			% of Total Pathology Payments
	1979-80	1982-83	5 yr. % Increase in Services	1983-84
17 Basic Services	71.9	66.20	+ 33.6	46.4
399 Other Services	28.1	33.8	+ 74.5	53.6
Category Office Visits	-	-	+ 29.7	

These 17 basic services account for 66.2% of total services in 1983-84, a decline of 5.7% from 1979-80 when they represented 71.9% of total services. This fall reflects the growth of lower volume tests among the other 399 services.

The rate of increase of these commonly used laboratory tests over the five year period of 33.7% compares closely with the 29.7% increase in office visits. The CBC, urinalysis and M-12 together account for approximately 30% of total services. The 53.7% increase in cultures has been explained above as due in part to a shift of specimens from the Provincial Laboratory sector.

Table 18 Summary compares the percent of services 1979-80 to 1983-84 for the 17 services. Although these 17 services in 1983-84 represent 66.2% of total pathology services, they accounted for only 46.4% of pathology payments. These two tables document the comparable growth in widely used basic laboratory services with the increase in office visits.

The decrease in basic service proportion of the total lab services over the five year period reflects the growth of the lower volume, more expensive services which account for only 33.8% of lab services, but 58.6% of payments. Examples of these growth areas will be given. Parallel rapid increase in consultation and pathology services which began in 1978 may be related to this shift to lower volume, more expensive diagnostic procedures, with their greatly improved diagnostic capability.

a) The CBC

The CBC is an established profile widely used in office practice. The E14, review by pathologist, is generated by the laboratory under the guidelines of the College of Physicians and Surgeons. Its increase of 29.7% parallels the CBC increase of 35.1%. The E29, or pathologist interpretation requested by the referring physician, increased 107.9% reflecting a greater awareness on the part of physicians as to the value of consultation.

b) Urinalysis

The number of urinalyses reflect wide use of a useful and low cost diagnostic test. Optimal prenatal obstetric care involves frequent urinalysis, and if one assumes each pregnancy involves a minimum of six urinalyses, then the approximate 44,000 pregnancies in 1983-84 would generate 264,000 urinalyses or 1/4 of the total.

c) Cultures

The demonstrated volume shift from the Provincial Laboratory in part explains the 53.7% increase. E258 and E259 together increased 61.8%. The use of these benefit codes is doubled or tripled for complicated cultures. Ambiguity in the Schedule of Medical Benefits and a lack of appropriate payments for difficult cultures results in the total number of E258 and E259 exceeding the actual number of cultures.

d) Pap Smears

The performance of 345,058 Pap smears in 1983-84 is consistent with a female population of approximately 700,000 at risk for CIN. A proportion of the Pap smears are repeats on suspicious cases.

e) Pregnancy Tests

The performance of 106,420 urine pregnancy tests in 1983-84 is not unreasonable considering the approximately 44,000 live births, approximately 6,600 spontaneous abortions and another 6,100 therapeutic abortions.

f) Glucose

The increase in glucose assays reflects continuing awareness of the need for the diagnosis and monitoring of diabetic patients. The impact of patient home glucose monitoring has yet to be determined.

g) Hemoglobin and Sedimentation Rate

Neither of these procedures increased at a rate comparable to discrete patient growth. This undoubtedly reflects the availability of a CBC, widespread use of automated blood counting systems and laboratory access.

h) E.C.G.

The rate in increase of ECG's parallels office visits. The extent of the problem of heart disease, in particular coronary artery disease in North America, justifies such utilization.

Our findings for basic laboratory services can be summarized as follows:

1. **Basic laboratory services showed rates of increase proportionate to Office Visits except microbiology.**

2. **Microbiology showed an accelerated rate of increase, in part due to a shift from Provincial Laboratory previously documented.**

3. **Basic laboratory services account for a smaller share of all laboratory services over the study period, reflecting the more rapid growth rate of the lower volume diagnostic procedures.**

4. **Considering the number of females at risk for CIN, the number of Pap smears may be low.**

Other Pathology Services

The remaining 399 codes account for only 33.8% of services but have grown at double the rate compared to the 17 basic services being 74.5% over the five years as shown in Table 18 and Table 18 Summary. Although they represent only 33.8% of services, they accounted for 53.6% of payments, the rate of growth in payments being approximately 16% greater than for basic services.

The result of their accelerated growth has been an increase in their proportion of total services of 5.7% over the five years. Among these 399 services are newer lab diagnostic procedures, many of which will continue to grow as their value becomes apparent. In this group are many services whose growth represents responses to new medical knowledge: coronary artery surgery and heart transplants; early detection of malignancy of colon and breast; sexually transmitted diseases, herpes, AIDS; giardiasis; hepatitis; the application of laboratory studies to psychiatric disorders.

Examples will be given illustrating the varied growth with an attempt at explaining medical reasons for this growth.

a) Thyroid Function Testing

Table 19 (Summary)

	Total 1983-84 Services	% of Total	% 5 Year Increase
E350 T3 Uptake	166,543	-	-8.2%
E353 T4 + FTI	17,938	-	+9.2%
E550U T4 (82-83)	122,981	-	-
E550W T3RIA(82-83)	21,723	-	-
E550T TSH (82-83)	80,185	-	-
Total	409,679	6.0%	-

The frequency of thyroid disorders, in particular hypothyroidism, and the difficulty establishing a diagnosis in borderline cases prompts heavy reliance on laboratory function testing. The results of academic pressures not to treat with replacement therapy prior to establishing and documenting hypofunction has made non-treatment without documented functional measurements almost universal. Furthermore, the subtlety of response to therapy necessitates monitoring dosage with blood levels of TSH. Now that a reliable assay is available, its widespread adoption occurred in the last five years.

Table 19 indicates that the basic thyroid function tests accounted for 6.0% of pathology services in 1983-84. Their payments were $7.212 million or 10.3% of pathology payments, slightly less than payments for CBCs.

Because of changes in the codes in the Schedule of Medical Benefits with assignment of codes and benefits during the study period, it is not possible to identify how some of these services were billed prior to 1982-83. Using only the first two, E350 and E353, the shift to new codes was largely from the E350 which in 1982-83 was 34.5% higher than in 1983-84. This dilemma illustrates the necessity of documenting benefit code changes year to year when they are used to monitor utilization.

The rapid increase in TSH testing reflects the coming on stream of a reliable laboratory procedure of great help in defining hypothyroidism. Recommendations to use TSH as a primary screen for hypothyroidism in patients over 40 from the College of Family Practice, while medically sound, encourage increasing utilization.

The frequent use of TSH assays has uncovered problems with false negative and false positive results inherent in any assay system. This has led to repeat testing for clarification. As experience is gained with the use of this assay such repetition may be unneccesary.

b) Lipid Studies:

Table 20 (Summary)

	1983-84 Services	% of Total	5 Year % Increase
E77 Cholesterol	16,780	-	+1.8%
E142 Triglycerides	34,501	-	+20.2%
E108 Lipoprotein	6,383	-	+13.0%
E519 HDL Chol.	24,004	-	+649.0%
	81,668	1.2%	
M-12 chol.	447,164		+41.5%

The main growth was in the measurement of HDL cholesterol which came on stream as a routine procedure just prior to the study period . In that cholesterol is part of the M-12 profile. There were 463,944 cholesterol assays with only 24,004 HDL cholesterols. The Alberta population between the ages of 25 and 64 is 1.2 million. Potentially one third of that population had cholesterol assays at least once in 1983-84.

Many patients now realize dietary correction of lipids and other changes in lifestyle may help in coronary artery disease prevention. This suggests that the beneficial use of lipid studies will continue to increase.

c) Electrolytes

Table 21 (Summary)

	1983-84 Services	% of Total	5 Year % Increase
E137 Sodium	88,068	-	+86.2%
E127 Potassium	118,568	-	+75.2%
E 76 Chloride	78,911	-	+90.5%
E 81 CO_2	65,506	-	+117.2%
	351,053	5.1%	+88.2%

Electrolyte services accounted for 5.1% of pathology services and $2.476 million or 3.5% of payments. An estimate of electrolyte profiles would be the CO_2 figure of 65,506 which would indicate that sodium and potassium alone are ordered almost as frequently as a profile.

The known value of monitoring electrolytes in patients on diuretic therapy accounts for a significant proportion of these assays. Similarly, their use is good medical practice in hypertensive patients, patients on renal dialysis, diabetes and in any situation in which a metabolic fluid or acid base disturbance is suspect.

d) Hemoglobin Electrophoresis

Table 22 (Summary)

	1983-84 Services	% of Total	5 Year % Increase
E19 Hb elect.	22	-	-68%
E97A Hb elect.	2,366	-	+396%
E18 Fetal Hb	138	-	+762%
Total	2,526	-	+350%

The 350.3% increase in hemoglobin electrophoresis is in part explained by the increased prevalence in the population of genetic hemoglobin abnormalities as a result of the immigration of Southeast Asians into the province. Definition of hemoglobin abnormalities is worthwhile in order to avoid future repetitive searches for the cause of low hemoglobins.

e) Malaria Smear

Table 23 (Summary)

	1983-84 Services	5 Year % Increase
E23 Malaria Smear	559	+130%

As with hemoglobin electrophoresis, increasing migration into Alberta from malaria endemic areas and increased foreign travel by Albertans justify this increase.

f) Hematinic Factor Assays

Table 24 (Summary)

		1983-84 Services	% of Total	5 Year % Increase
E401	Folate	6,003	-	1.87%
E401A	RBC Folate	119	-	-
E551B	Folate (added 83-84)	13,543	-	-
E103	Iron	26,367	-	+78%
E550D	Ferritin (added 81-82)	10,032	-	-
E551A	Vit.B_{12} (added 82-83)	12,575	-	-
		68,639	1.0%	
E513	Radioimmunoassay	1,606		+382% (no yearly decrease)

Hematinic Factor assays accounted for 1.0% of pathology services, the increase being not possible to calculate due to new benefit codes initiated during the study period. The 77.7% increase in serum iron suggests increased lab diagnostic studies are being used to elucidate the cause of anemia. Improved Vitamin B_{12} and folate assays have also resulted in increasing usage.

g) Occult Blood Stool

Table 25 (Summary)

		1983-84 Services	5 year % Increase
E248	Occult Blood	27,488	+206%

As the only simple screening test for colon cancer this increase of 206.7% is justified. Awareness of the value of this procedure in the early diagnosis of colon cancer will no doubt increase its use. In 1983-84 it accounted for only $126,229 in payments.

h) Therapeutic Drug Monitoring

Table 26 (Summary)

		1983-84 Services	5 year % Increase
E516	Ethosuximide	116	+152%
E516A	Dilantin	7,957	+266%
E516B	Phenobarbitol	2,548	+220%
E516D	Primidone	281	+9266%
E516G	Other (EMIT)	12,415	+3051%
E550	Digoxin (start 81-82)	13,384	-
E135	Salicylates	835	+20%
		37,536	+813%

The drug assays listed account for 1.5% of 1983-84 payments. The benefits of dosage regulation based on anti-convulsant level monitoring on a regular basis have been well documented as reducing seizure activity. The increasing use of digoxin assays would also appear to be justified. The code E516G, other EMIT, includes theophylline and other drugs for which no code exists.

Therapeutic drug monitoring is developing as a known benefit in the control of therapy. Growth in this area can be anticipated. Revision of the codes to allow for greater ease of monitoring these procedures is recommended.

i) Histopathology:

Table 27 (Summary)

		1983-84 Services	5 Year % Increase
E322	Tissue gross & micro	38,984	+188.5%

The gross and microscopic examination of tissues accounted in 1983-84 for 2.2% of payments, services having grown 188.5% since 1979-80. This increase reflects increased office biopsy procedures, a shift from the hospital sector, the addition of the tray fee and the preference of many physicians for office performance of minor surgery. Continued growth of this service can be anticipated.

j) Pregnancy Testing

Table 28 (Summary)

Year	E411 Urine Preg.	E550K Serum BHCG	Total
1979-80	85,247	-	85,247
1980-81	95,390 (11.9%)	-	95,390 (11.9%)
1981-82	106,592 (11.7%)	414	107,006 (12.2%)
1982-83	111,392 (4.5%)	6,634 (502%)	118,026 (10.3%)
1983-84	106,420 (-4.5%)	9,655 (46%)	116,075 (-1.7%)
5 year %	24.8%	-	+36.2%

The introduction of serum beta HCG assays in 1981-82 allowed for the earlier diagnosis of pregnancy. Physicians began a switch to this procedure as shown. The above table illustrates how changing medical knowledge and the advent of new diagnostic procedures requires correlation in following utilization.

In a healthy pregnancy a $33.25 beta HCG will establish a diagnosis two weeks earlier than a urine pregnancy test for $6.80. Whether this is a justified cost can be questioned. The delay encountered in obtaining therapeutic abortions may prompt this demand for early diagnosis.

The solution lies in the development of monoclonal antibody urine pregnancy tests that are not interfered by LH and FSH and can be set to establish a diagnosis almost as early as a serum beta HCG. The reagents for the monoclonal urine beta HCG tests are more expensive, possibly requiring an upwards adjustment in the $6.80 benefit.

The combined urine and serum tests in 1983-84 fell by 1.7% which may reflect in part the availability of self-testing kits or drug store pregnancy tests not funded by AHCIP. Many of these used by the patient will be repeated by the physician on her first visit.

k) Microbiology

Table 29 (Summary)

These services were covered under the comparison with the Provincial Laboratory. They are summarized here.

	1983-84 Services	% of Total	5 Yr. Increase	Provincial Lab 5 year Increase
Bacterial Culture 258, 259, 271	875,001	12.7%	+ 63.0%	-16.7%
Parasitology 263, 265, 262, 262A	192,828	2.8%	+124.0%	+12.9%
Rubella Serology E499	43,217	0.6%	+84.3%	+17.5%
Syphilis Serology E283	77,179	1.1%	+ 42.0%	-31.2%

Bacterial cultures have been discussed.

Parasitology increases reflect the giardiasis epidemic in Alberta during the study years. A greater proportion of the increase went to private laboratories.

Rubella serology increased in both sectors although the bulk of the increase went to private laboratories. Provincial Laboratory volume is still above private laboratories in 1983-84. Awareness of the need for screening females to avoid the devastating effects of congenital rubella syndrome justifies this increase. Of interest, the combined totals of approximately 99,800 rubella serologies is just over double the approximately 44,000 live births in Alberta in 1983-84. To what extent unnecessary repetition of serologic studies for rubella occurs cannot be determined.

Syphilis serology decreased at the Provincial Laboratory with a moderate increase in AHCIP services. The combined Provincial Laboratory and AHCIP totals fell between 1982 and 1984 approximately 10% despite the fact that there was an increased incidence of syphilis documented in Edmonton and Calgary.

As newer methodologies in the area of serologic testing, in particular for viral disorders, come on stream with the advent of monoclonal antibodies an increase in their utilization can be anticipated.

l) Other Procedures

A variety of other procedures showed dramatic increases during the study period, but no obvious explanation for their increases was discovered.

Table 30 (Summary)

		1983-84 Services	5 Year % Increase
E43	Prothrombin Time	44,473	+ 30%
E46	PTT	4,185	+107%
E59	Amylase	15,155	+ 88%
E68	Calcium	7,004	+106%
E84	Creatinine	36,619	+119%
E123	Alk. Phosphatase	18,205	+ 64%
E125	Inorg. Phos.	5,037	+175%
E487	Plasma Cortisol	3,986	+151%

Cortisol increases may reflect out patient use of dexamethasone suppression tests for the diagnosis of depression.

E99	Immunoglobulin	9,759	+ 87%
E287	FANA	18,992	+108%

Findings - Laboratory Services:

1. **Since 1978, pathology services per thousand registrants increased at almost double the rate of office visits.**

2. **High volume inexpensive basic pathology services (17/416):**
   a) **Account for 2/3 pathology services but only 1/2 of payments.**
   b) **Decreased their share of total pathology services by 5.7% in the five study years.**

3. **Low volume expensive services (399/416):**
   a) **Account for 1/3 of the total pathology services but 1/2 of pathology payments.**
   b) **Increased their share of total pathology services by 5.7% over the five year study period.**
   c) **These procedures represent a growing area of clinical pathology, further increases can be anticipated.**

4. **Growth of AHCIP pathology services was approximately three times the growth of hospital out-patient pathology units suggesting a shift to AHCIP funded laboratories.**

5. **There was a documented shift in microbiology services, in particular bacterial cultures, serology and parasitology from Provincial Laboratory to AHCIP covered laboratories. The sum of total cultures at Provincial Laboratory and in AHCIP funded laboratories grew 39.4%, whereas Provincial Laboratory specimens decreased 16.7% and AHCIP culture services increased approximately 64.4%. Possible constraints on the Provincial Laboratory funding may be contributory.**

6. The disproportionate growth rates of AHCIP, hospital laboratories and Provincial Laboratory may be related to different budgetary policies between the sectors. Provincial Laboratory and hospital budgetary policies during the period of the study may have contributed to the increase in the rate of growth of AHCIP funded pathology services.

7. The 1982-83 accentuated growth rate paralleled office visits and other categories. A contributory factor was the coming on stream of new methods, in particular therapeutic drug monitoring, hematinic factor assays, thyroid function testing and other hormone assays. Many of these new benefit codes impacted on AHCIP in 1982-83.

8. Changing patterns of disease and increased laboratory diagnostic and monitoring services, as a result of awareness of prevalent disease, increased parasitology, occult blood testing, lipid studies and electrolytes.

9. Peer pressures of academic or professional organization, the threat of legal action and patient pressures resulting from increased awareness of diagnostic procedures all contributed to the increase although their quantitative impact cannot be measured.

10. Universality of Medicare and the lack of direct financial responsibility on the part of patients and physicians was most certainly contributory, although not measurable.

11. Developers eager to lease ample office space have catered to patient and physician convenience. Satellite laboratories make stable tenants, attracting physicians and other tenants to office buildings. To what extent this increases utilization cannot be measured.

12. The growing number of walk-in extended hour clinics with adjacent or incorporated laboratories, may further contribute to utilization, but again, to what extent would be difficult to measure. Their predominant use of basic laboratory services would suggest their impact during the study period is not as great as has been suggested by some observers.

13. Repetitive testing by multiple consultants and failure to use previous testing may have contributed to the increase in pathology

5.3.4 Other Diagnostic

This heterogeneous category, comprising 8.2% of AHCIP services, grew at a rate comparable to Pathology. As payments it accounted for only 5.4%, the discrepancy with services being due to the inclusion of many low cost skin test services.

The subcategories included are:

- Allergy testing
- Injection and aspiration of joints
- E.C.G. professional
- Cystoscopy
- Sigmoidoscopy
- Other endoscopy
- Cardiac catheterization
- Myelograms
- Diagnostic ultrasound
- D & C - abortions and cone biopsies
- Skin biopsies
- Others

Most services have in common a diagnostic use but some are not appropriately assigned. The heterogeneous nature requires study of subcategories to assess impact.

Selected Examples of Subcategories

a) Diagnostic Ultrasound (X200 - X253):

Table 31

	1983-84 Services	5 Year Increase	1983-84 Payment Millions $	5 Year Inc. Payments
Pregnancy related X235 - X242	32,008	+213.6%	$ 2.221	351.7%
Pelvic mass X243	18,366	+764.3%	1.307	1142.9%
Liver & Gallbladder X224 - 225	16,805	+1299.3%	1.303	1907.3%
Abdominal & follow up X222 - 223	5,452	+898.5%	.387	1257.6%
Renal X226	2,112	+1187.0%	.165	1791.0%
Total Ultrasound	74,743	+424.8%	5.383	+670.0%

Source - Utilization Data Base

The 424.8% increase reflects this new diagnostic tool coming on stream during the study period with predominant growth in placental localization, pelvic mass investigation, gallbladder studies, abdominal and renal studies. The greatest increase occurred in 1982-83 in each of the above.

The 32,008 pregnancy studies in 1983-84 can be compared to the approximate 44,000 live births. The potential information that can be missed if the technique is not used prompts heavy utilization.

The ultrasound diagnosis of gallstones has largely replaced conventional X-rays.

Investigation of pelvic mass, other abdominal masses and renal masses is of benefit in delineating lesions and differentiating cystic from solid tumour.

Findings - Diagnostic Ultrasound:

1. **Diagnostic ultrasound is a significant contributor to the increase in utilization, in particular the surge in 1982-83.**
2. **Its use has reduced some X-ray services like gallbladder studies.**
3. **Medically it provides noninvasive diagnostic information previously unavailable, in particular during pregnancy.**
4. **Its use during pregnancy is in part as a result of physicians' concern over missing preventable complications of potential medical or legal significance.**
5. **Ultrasound should be identified as a separate subcategory and would be better related to Radiology or split between Obstetrics and Radiology.**

b) Respiratory Function Testing

The opening of outpatient respiratory function laboratories is reflected in the 100 fold increase in pulmonary function services (B87, 88, 89 and 401) to a $560,000 expenditure in 1983-84. These studies have been previously performed in hospitals and represent a shift to AHCIP.

c) Endoscopy

Cystoscopies, mediastinoscopies and esophagoscopies are in this category, increasing respectively approximately 100-275% over the five years. Gastroscopy, K250, services increased 66.6% for a total of $1.579 million in 1983-84.

d) Angiography

Coronary angiography and other catheter placement services, B35D, B34, B34A and B35, increased approximately 107%. Right and left heart catheterization increased only modestly.

e) Skin Test, Allergy and Desensitization (B464,464A,464B,465,465A)

These low cost services accounted for 40% of Other Diagnostic services but only 5.7% of payments. They increased significantly over the five year period with no accentuation in 1982-83.

f) Obstetrics-Gynecology Procedures

H35, incomplete abortions, decreased 11.7% over the five years. Included also are cone biopsies of cervix but not colposcopy which is under Obstetrics.

g) Muscle and Skin Biopsies

K242 and 242A, skin biopsies for approximately 35,500 services in 1983-84 increased 143.7% in the five years. K266D, E & F, removal of warts by various modalities for approximately 280,000 services increased 107.3%. These codes should be under Minor Surgery.

Findings - Other Diagnostic:

1. **The increase in services of 41.6% was linear from an 8.1% increase in 1980-81 to 11.7% in 1983-84 with no accentuation in 1982-83. Prior to 1979 there was a decline in this category in services per thousand registrants.**

2. **Major growth areas were diagnostic ultrasound, skin biopsies, respiratory function studies and endoscopies.**

3. **Reassignment of codes to clearly identify the services in relation to other services is recommended.**

    a) **Ultrasound to Radiology or divided between Radiology and Obstetrics.**
    b) **TUR's to Urology**
    c) **Skin biopsies to Minor Surgery**
    d) **D & C and cone biopsies to Obstetrics**

4. **This reassignment would better identify the major growth areas, in particular skin biopsies, ultrasound and respiratory function diagnostic procedures.**

5. **Payment differences between hospital and office procedures exists although their impact on AHCIP utilization is not measurable due to lack of data.**

5.3.5 Minor Surgery and Miscellaneous

The 30.1% increase in the category Minor Surgery services is deceiving. Related procedures have been categorized under Other Diagnostic and Miscellaneous, masking the striking increase that actually occurred.

Table 32

Additions to the Category Minor Surgery

Skin biopsies from Other Diagnostic
Tray fees from Miscellaneous

	1979-80		1983-84	
	Service	Payments	Service	Payments
Minor Surgery	208,938	5,197,866	271,864 (+35.0%)	8,349,837 (+60.5%)
Other Diagnostic K266 D,E,F (skin biopsies)	133,795	307,965	277,363 (+107.3%)	647,041 (+110.1%)
Subtotal	342,733	5,505,831	549,227 (+60.2%)	8,996,878 (+62.8%)
Miscellaneous A60,61 (tray fees)	24,752	229,759	185,588 (+649%)	2,722,747 (+1085%)
New Minor Surg.	367,485	5,735,590	734,815 (+100%)	11,719,625 (+104.3%)

Source - Utilization Data Base

During the five year period the predominant growth in the category Minor Surgery was during 1980-81 with a lesser peak in 1982-83 (Table 5). Tray fees increased mainly in 1980-81, reflecting their addition to the Schedule of Medical Benefits in 1979-80 and their beginning incorporation into practice patterns.

When K266 D, E and F, skin excisions, from the category Other Diagnostic are added to Minor Surgery, the increase in services is 60.2% rather than 35%. Other codes could also be shifted, for example K242 and 242A skin and muscle biopsies, which would increase Minor Surgery even further.

Tray fees, A60, 61 in the category Miscellaneous, while paid for supplies needed for minor surgical procedures, are counted as services (by the definition of a service as a unit of reimbursement). When added to the revised category Minor Surgery, services would be increased by 100%. Payments would increase by 104.3% rather than the 60.5% increase for the presently defined category Minor Surgery. In dollars, this adjustment for 1983-84 means $11.7 million in payments rather than the $8.3 million paid in the presently defined category Minor Surgery. In 1983-84 changes in payments for some benefit codes reduced payments in proportion to increased services.

It is not possible to determine numbers of excisions carried out in hospitals. The number of tray fee services, 1/3 of the combined Other Services, suggests a majority may be hospital based. Not all Minor Surgery services have an accompanying tray fee.

Table 33

Category Minor Surgery - Skin Biopsies, Excisions and Lacerations

	1983-84 Services	% of Total	5 Year % Increase
Warts, kerkatoses, nevi and cysts* (10 services)	115,010	42.3%	+56.9%
Major & Minor lacerations K292, 293	74,842	27.5%	+9.2%
Total	189,852	69.8% (64.3% payments)	+33.9%

* K266, 266A & B, 269, 270, 271, 272, 273, 287 & 296

Source - Utilization Data Base

The table indicates that 69.8% of Minor Surgery services (64.3% of payments) result from 12 of the 136 services, these being skin excisions by various modalities and repair of lacerations.

Findings - Minor Surgery:

1. **There has been a doubling of services in the category Minor Surgery in the five year study period if tray fees are added.**
2. **The majority of services are excision of skin lesions.**
3. **The introduction of the tray fee in 1979-80 has contributed to this increase, its main utilization impacting in 1980-81.**
4. **Growth peaked in 1980-81 with a smaller peak in 1982-83.**

5. The proportion of services performed in hospital vs. offices is not known. Considering only 1/3 of the number of tray fee services were charged suggests a significant proportion of these services may have taken place in hospitals. This increase may be due to recent Schedule of Medical Benefit changes.

6. The allocation of tray fees in Miscellaneous and some skin excisions in the category Other Diagnostic makes it difficult to estimate the actual increase.

5.4 CATEGORIES WITH INCREASES LESS THAN OFFICE VISITS

5.4.1 Anaesthesia

Anaesthetic services were close to Major Surgery with a 15.5% increase in 1982-83 or 1/2 of the 26.8% 5 year increase.

The Time Release Clause accounted for 1/2 of services, growing from 47.7% in 1979-80 to 50.9% in 1983-84 and accounting for approximately 1/3 of payments.

5.4.2 Major Surgery

Although accounting for only 0.8% of services, Major Surgery accounts for 8.4% of payments. Anaesthesia and Major Surgery together are 2.5% of services and 12.5% of payments.

Figure 10 illustrates how Major Surgery, Anaesthesia and Hospital Visit services showed minimal increases in 1980 to 1982 , with over 1/2 of the five year growth occuring in 1982-83. This can be related to hospital bed closures due to construction and the nurses' strike in 1981-82. Added payments for these categories in 1982-83 accounted for approximately 30% of the dollar increase in that year.

Attempts to identify which services accounted for the 1982-83 increase indicate increases in the majority of surgical services. Newer procedures and added surgeons were not causally related.

Examples of Major Surgical Services:

a) Cataract Surgery

Cataract surgery with lens implant (P83A) increased 483% accounting for 3,889 services and $2,065,156 million in payments in 1983-84. A new and beneficial technology allowing for out-patient rather than in-patient performance, reduced potential hospital expenditures. The peak year of growth was 1981-82. Out-patient performance of this procedure has a potential cascade effect. The majority of patients are elderly, frequently requiring consultations, laboratory and X-ray studies in their pre-operative assessment. The plastic lenses implanted each cost around $300.00.

In the opinion of the Committee the added costs of out-patient lens implants is outweighed by the medical benefits derived from improved vision. The fact that this is an out-patient procedure adds to the cost effectiveness. The independence achieved with return of functional vision may further reduce the need for other government support.

b) Endoscopy

Over the five years colonoscopy, K247, increased 200% to 4,256 services and polypectomy, K248, 165%, both showing maximal increases in 1982-83. The increased awareness of early detection and removal of polyps to improve the outlook for colon cancer makes this increase reasonable and the possibility of further increase probable. The inclusion of other endoscopic procedures under Other Diagnostic, which also showed significant increases, masks proper evaluation of increases in endoscopic services.

c) Plastic Surgery

Many plastic surgery services showed significant increases of 100-300% and more although all are low volume services. Removal of skin lesions are under K codes and recorded under Minor Surgery and Other Diagnostic making it difficult to assess the impact of the 40% increase in plastic surgeons in Alberta during the period of the study.

d) Tubal Ligation - H61

Tubal ligations accounted for 9,665 services in 1983-84, a 21% increase over the five year period.

e) Many other services increased in 1982-83 but no one service or group of services was the major contributor to the 17.15% increase.

Findings - Major Surgery:

1. **Given newer diagnostic and therapeutic surgical services like lens implant, the yearly growth rate of 5.62% in Major Surgery is not innappropriate.**
2. **The cascade effect initiated by surgical procedures on elderly patients, in particular out-patient surgery, generates consultations, lab and X-ray studies and other diagnostic procedures.**
3. **Multiple procedures contributed to the 1982-83 increase, most likely the result of the limitations in major surgery in 1981-82 due to hospital construction and the nurses' strike.**

5.4.3 Obstetrics

The 56,206 services in 1983-84 are 82% direct obstetrical care and delivery related. The 44,210 live births correlate well with the 46,094 services (G9, 9F, 11, 11A, 13). The addition of 32,018 pregnancy related ultrasound services (X235, 242, 244) from Other Diagnostic to Obstetrics would increase services by 57% and payments by 16.0% in 1983-84.

There was a 17.8% increase in services over the five years, correlating well with the birth rate. Of interest, there was no accentuation of the 1982-83 growth rate as occurred in all other categories, reflecting the nature of obstetrical practice.

Therapeutic abortions, G5, decreased 6.5% to 6,120 in 1983-84, of interest in view of the controversy that surrounds this procedure.

Ceasarian sections (G13) increased 29.7% over the five years whereas deliveries without C-section (G9) increased only 13.5%.

Findings - Obstetrics:

1. **The growth rate in obstetrical services is appropriate given the birth rate.**

2. **There is a significant increase in the Ceasarian section rate over the study period.**

3. **The numbers of therapeutic abortions decreased over the five year study period.**

4. **If pregnancy related ultrasound services were added to Obstetrics it would increase Obstetrical services 57% in 1983-84.**

5.4.4 Surgical Assists

Surgical Assist services paralleled Major Surgery services but the magnitude of the increase per thousand registrants was less by 2.62% per year. As a percentage of Major Surgery services, assists decreased from 42.6% in 1979-80 to 38.5% in 1983-84.

5.4.5 Hospital Visits and House Visits

Interpretation of Data

The table on page 24 of the 1983-84 AHCIP Annual Report indicated House Visits per thousand registrants fell 43% whereas Hospital Visits increased 5.8%. This discrepancy was due to a sudden change in 1982-83 which continued in 1983-84. (See Table 8)

Category review indicated that A29, hospital visits from office or home up to 1981-82, were included under House Visits. In 1982-83 A29A and B which are time related replaced A29 and they were inserted under Hospital Visits.

When the A29's are assigned to Hospital Visits (Table 9), both have declined, Hospital Visits only slightly by 0.9% per thousand registrants per year, and House Visits by 1.4% per thousand registrants per year.

Hospital Visits

Hospital Visits accounted for 8.5% of services and 7.3% of payments in 1983-84. Figure 8 illustrates services follow the trend of Major Surgery increasing sharply in 1982-83.

The 11.8% increase in 1982-83 which exceeds the five year percent increase of 7.9% was in part due to the addition of codes A70, 71, 72, sudden callback evenings and nights. (Table 5)

Findings - Hospital Visits:

1. **Correction of code assignments reveal a slight fall per thousand registrants rather than an increase.**
2. **Benefit code additions and relationship to Major Surgery explain the sharp increase in 1982-83 over 1981-82.**
3. **Compared to Office Visits and Minor Surgery it appears physicians are devoting more time to office practice.**

House Visits

House Visits account for 1% of services and payments. They declined on the average by 1.4% per thousand registrants per year during the study period although 1982-83 showed an increase.

Increasing ease of access to medical services after hours in Emergency Rooms or walk-in clinics, a reduced patient demand and reluctance on the part of some physicians to provide house calls have contributed to this fall. Benefits for house calls are reasonable and alone should not be a deterrent.

The modern trend towards institutional care, accentuated by the above, may discourage home care.

Findings - House Visits:

1. **House Visits decreased slightly in frequency based on the number of registrants.**
2. **This fall reflects the trend towards office and institutional practice, the ease of access to after hour service and changing physician practice patterns.**

5.4.6 Radiology

Radiology accounted for 3.2% of services and 4.4% of payments in 1983-4, increasing 10.2% over the five years but declining slightly in services per thousand registrants. If ultrasound services from Other Diagnostic were added, the increase in services would have been double at 20.2% and payments in 1983-84 would have been 30% higher. In that CAT scanning and many expensive nuclear imaging procedures are carried out as hospital out patient services, the actual increase in radiological services cannot be determined but would undoubtedly be much greater.

The 1982-83 increase of 5.5% contrasted with 0.1-2% increases in the other years.

Significant increases occurred in:

a) Spine and Joint Studies

X54, 54A and 54B, spine and pelvis increased 104% to 11,453 services in 1983-84 or 1.6% of all radiology services. W43, 43A, 43B, knee X-rays, increased 38.7% and X44, arthrograms, increased 158.9%. These reflect increased handling of spine and joint problems in office practice.

b) Mammography

Mammography, X27, increased 69.01% to 7,141 services in 1983-84, the year of greatest increase of 24.4%.

c) Scanning Procedures

Scanning procedures, liver, spleen (X151, 151A, 151B) and bone (X157), increased 300-400% for 3,247 services in 1983-84.

d) Dynamic Brain Studies

Dynamic brain studies increased 139.47% to 3,549 services.

Contrasting these increases was a significant decline over the five years in chest X-rays, W21, which are 25% of 1983-84 services. Colon X-rays (X86, 87, 88, 88A) decreased 6-8% reflecting the wider use of colonoscopy. Cholecystography (X89, X90, X91) decreased 51.4%, replaced by ultrasound studies.

Findings - Radiology:

1. **The slight decline in X-ray services per thousand registrants reflects changing diagnostic methods, in particular ultrasound and colonoscopy.**

2. **If ultrasound were added to Radiology, services would have increased 20% as opposed to 10% and payments by 25%.**

3. **All CAT scanning, much nuclear imaging, and many diagnostic X-rays are currently performed in hospital out-patient departments. A true picture of the increases in Radiology cannot be gleaned from AHCIP data alone.**

5.4.7 Additional Studies

Category review led to several other hypotheses. Consequently the transfer of Workers Compensation Board payments to AHCIP, the nurses' strike in 1981-82, hospital construction prior to 1982 and changes in physician manpower were studied.

Workers' Compensation Board Payments

The transfer of WCB payments for medical services to AHCIP occurred Jan 1, 1982. The possibility that these were not identified as WCB services but rather were included with AHCIP services, might have been a contributing factor to the 1982-83 increase.

This hypothesis was studied by Dr. Y.M. Cheung of Health Economics and Statistics, Department of Hospitals and Medical Care, and reported to the Committee, "Estimated Impact of WCB Claims Reporting Problem with the 1982-83 Medical Utilization Rate".

Using WCB claims data, estimates of numbers of services were made. Assuming comparable growth rates for WCB and AHCIP services, at the most 161,195 services or 0.72% of 1982-83 medical services would be due to WCB services. Subtracting these from the 1982-83 total medical services, the utilization rate of increase would be at the most 0.5% less. It was concluded that at the most only 1/20 of the 1982-83 service utilization increase could be due to unidentified WCB services.

Nurses' Strike and Hospital Construction

The table on page 54-55 of the Department of Hospitals and Medical Care Annual Report for 1983 indicates an increase of 10.1% in admissions to acute care hospitals, 1983 over 1982, and patient days increasing 7.6%. The nurses's strike February 16 - March 10, 1982 impacted on the 1981-82 utilization of hospitals. The report of Moore and Cheung, commenting on the manpower studies of Barer and Evans, also notes that during 1981-82 there was considerable hospital remedial construction which, by affecting bed closures, may have decreased hospital utilization, the 1982-83 increase being a rebound phenomenon.

The 10.1% increase in admissions in 1982-83 compares to the 17.2% increase in Major Surgery occurring in the same year.

In order to test the rebound hypothesis a table was generated (Table 34) of quarterly services on a date of service basis over the five year period for each of the 13 categories and quarterly services for Major and Minor Surgery were plotted (Figure 11) on a date of service basis.

The steady increase in quarterly Major and Minor Surgery services, with an increase for the fourth quarter can be seen, except 1981-82 when fourth quarter services fell. This was the quarter in which the nurses' strike occurred.

Hospital Visits, Major Surgery, Minor Surgery, Surgical Assists, Anaesthesia and Other Diagnostic are all hospital related services which decreased in the fourth quarter of 1981-82 whereas in the two preceding and two following years they each showed significant fourth quarter increases.

These data are interpreted as documenting reduced hospital utilization which in turn reduced AHCIP services, in particular Major Surgery during the nurses' strike and remedial construction and bed closures in 1981-82. As indicated in the Department 1982-83 Report, and illustrated in the tables, 1982-83 showed a striking increase in these categories corresponding to increased bed utilization, contributing significantly to the 1982-83 increase in medical services.

The continuing linear increase in major surgery in 1983-84 indicates the decline in 1981-82 and the marked increase in 1982-83 are not dramatic changes but yearly fluctuations in response to availability of hospital facilities. Misconceptions are generated when yearly increases are considered out of the context of historical data.

Physician Manpower

Further discussions of medical manpower appear under Indices of Utilization. (Section 7.3)

The hypothesis that physicians entering practice may have clustered in 1982-83, contributing to the 1982-83 increase, was considered. Table 35, Medical Practitioners by Specialty, is graphically displayed in Figure 12.

The numbers of medical specialists increased most in 1982-83 suggesting that as consultants they may have contributed to the rates of increase in Consultations and Pathology. Contradictory to this hypothesis however is the fact that although 2/3 of the five year increase in Major Surgery occurred in 1982-83, this was the year of the lowest rate of increase for surgical specialists, or 1/10 of the increase over the five years.

Such contradictory data make interpretation of the relationship of physician manpower to utilization difficult. Nevertheless, it would be reasonable to postulate that the dichotomy between increasing surgical services and surgeons suggests other factors were operative in 1982-83 utilization increases in surgery rather than physicians entering practice. Similarly, the entry into practice of medical specialists may have been a factor in 1982-83, increasing Consultations, Pathology and Other Diagnostic.

5.5 SUMMARY OF FINDINGS - CATEGORY REVIEW

Specific findings have been noted for various medical service categories. Looking at the total study, the following are relevant:

1. **During the five year study period Alberta's population increased 10.4% and the proportion of registrants using AHCIP increased 5% for a total increase of numbers of discrete patients of approximately 16%.**

2. **The category Office Visits increased 29.7% accounting for 40% of medical services.**

3. **When benefit codes are moved between categories to bring together related services, minor surgical procedures increased 100%. In particular, skin biopsies increased 60.2% and tray fees increased 649%.**

4. **The category Consultations increased 48.8% and may conceivably have been related to new internists, dermatologists and gastroenterologists in particular. Greater use of consultants and a wider range of diagnostic tests available would be contributory to utilization increase. Medically this is a favourable occurrence.**

5. **In the category Pathology services increased 45.2% but is divided into two major groups:**

   a) **Frequently used basic services, accounting for approximately 2/3 of pathology services increased 33.7%, comparable to the rate in office visits.**

   b) **Low volume, expensive pathology services which accounted for only approximately 1/3 of services, increased at a rate of 74.5% over the five year period. In particular, thyroid function studies and electrolytes showed marked increases.**

6. **In the category Other Diagnostic, services which increased are:**

   - **Ultrasound by 670%**
   - **Respiratory function services by 600%**
   - **Endoscopies by over 200%**

7. **A shift in services from the Provincial Laboratory and hospital out patient departments occurred which contributed to the growth in pathology services, in particular in the area of microbiology, cultures, serology and parasitology.**

8. **The addition of new codes to the Schedule of Medical Benefits, in particular tray fees, contributed considerably. In Pathology the development of codes for low volume drug and hormone analyses impacted during the study period, particularly in 1982-83.**

9. **New medical services like lens implants for cataracts, endoscopy,**

and ultrasound which represent the influx of new technology and knowledge into medical care impacted during the study period.

10. Workers' Compensation Board claims incorrectly identified as AHCIP services were not a significant factor.

Factors Contributing to the 1982-83 Increase in Services have been identified as follows:

1. The 11.4% increase in services in 1982-83 suggests a change in practice patterns and not a clustering of service assisgnments to this year in that the added services were retained in 1983-84.
2. A sudden 5% increase in discrete patients in 1982-83 increased services by an estimated 3-4% in that year.
3. The nurses' strike in the winter of 1982 and the extensive hospital construction in 1981-82 reduced hospital utilization with a corresponding fall in hospital related AHCIP services, i.e. Major Surgery, Anaesthesia, Surgical Assists, Hospital Visits. This was followed by a rebound in hospital bed utilization in 1982-83 and similarly, in the hospital related AHCIP services, in particular Major Surgery.
4. Medical specialists entering practice tended to cluster in 1982-83, possibly compounding the pressures on utilization resulting from No. 3.
5. Eleven of the 13 service categories showed significant increased rates of utilization in 1982-83. Obstetrics did not show this peak, probably related to the fact it is dependent more on the birth rate. The category Other Diagnostics showed a greater increase in 1982-83 than in the preceding three years but the increase was even greater in 1983-84, reflecting the heterogeneous mix of services in this growth category.
6. Confrontations with government over benefit schedule increases were accentuated in late 1982. Coupled with improved business practices on the part of practitioners, services previously not billed may conceivably have been added. Changes in practice patterns, i.e. psychotherapy, contraceptive advice, annual physicals, as related to improved billing practices is possibly contributory but not measurable.
7. During the study period walk-in clinics opened with extended hours of service. The improvement in the ease of access to medical services is reflected in the disproportionate increase in benefit code A2, particularly in 1982-83, although the increase was not confined to that year. The decline in House Visits relative to other categories corroborates this.
8. The addition of benefit codes under the category Pathology for the performance of hormone assays, drug monitoring and hematinic factor assays occurred in 1982-83 with a sudden and dramatic

increase in these services that year.

9. New services such as tray fees impacted during the five year period under study. Ultrasound in particular showed a striking growth rate at its maximum in 1982-83.

6.0 ANALYSIS OF OTHER FACTORS

6.1 POPULATION

A potential discrepancy between StatsCan population data for June 1st of each year and accumulated numbers of discrete patients using AHCIP exists, but the trends over the five year period were considered comparable.

Table 36 and Figure 13 indicate the Alberta population increased 10.4% over the five year study period although the increase occurred in the first four years. Discrete patients increased 15.8% with the greatest increase in 1982-83 and a continuing lesser rate of increase in 1983-84.

An increase of 5% in discrete patients, greater than the increase in population, contributes significantly to utilization. For example, in the year 1982-83, given a total population of 2.2 million registrants, a 5% increase in discrete patients would be 110,000 patients. Average services per registrant in 1982-83 were 8.5, hence for the added registrants there would be an additional 850,000 services which is 3.8% of the 22.217 million services in 1982-83.

Of interest, registrants always exceeded the population by 2.7 to 4.8%, as illustrated in Figure 12. (See AHCIP Annual Report, March, 1984, page 22 - Explanatory Notes)

Table 37, based on June 1st of each year, and Figures 14 and 15, graphically display the proportions of the Alberta population in age groups and indicate a disproportionate growth within age groups along with the overall population increase. While the population grew by 9.7% the age group 25-44 grew by 22.5% and the age group 15-24 decreased by 4.6%. The 15-24 year age group showed a decline of 8.6% between 1982 and 1984.

For discrete patients (Table 38 and Figures 16 and 17 based on March 31 of each year) growth was greater than total population, being 15.8% over the five year period with an even greater disproportionate growth in age groups. The 25-44 year age group grew by 29.8% but the 15-24 year age group grew by only 2.0% of total discrete patients.

The over 65 year age group grew by 16.5%, a rate greater than the total population growth but as a proportion of discrete patients their increase was only 16.5% compared to a total discrete patient increase of 15.8%.

The growth of the 25-44 year age group, from 29.5% in 1979 to 33.1% in 1982-83, of discrete patients using AHCIP and the fact that the proportion of discrete patients in this age group was greater than their proportion in the Alberta population and the acceleration of their growth rate in 1982-83 all suggest a possible correlation with the increasing rate of utilization. Growth of that portion of the population over 44, and in particular over age 64, would on the basis of medical necessity be easier to relate to increased utilization of services than for the 25-44 year age group. Whether the disproportionate growth in the 25-44 year age group contributed to increasing utilization of services is more difficult to explain on the basis of medical necessity. The stress resulting from the loss of employment which occurred frequently during the study period would be greatest in the 25-44 year age group, possibly encouraging increased office visits and physician services.

The significance in the relative decline of the 5-24 year age group in 1983-84, with lower growth rates than other age groups prior to this, is not apparent other than for its contribution to the increasing proportion of the population over 25.

Findings - Population:

1. **Discrete patients using AHCIP grew 15.8% whereas the population grew by only 10.4%. This increased number of patients would contribute significantly to the utilization of services.**

2. **Discrete patients increased 5.4% in 1980-81 and 5% in 1982-83. Estimates suggest the added discrete patients in these years could account for 3.8% of the increase in services.**

3. **The continued increased proportion of discrete patients in 1983-84 explains in part the maintenance of services added in 1982-83.**

4. **There was a disproportionate growth in the population with a significantly greater increase in the 25-44 year age group than in the 15-24 year age group. The figures for discrete patients in these two age groups showed an even greater disproportion.**

5. **A moderate disproportionate increase in the proportion of the population over 65 was accompanied by an even smaller increase in their proportion of discrete patients.**

6. **Continued steady growth in the proportion of the population over 65 during 1983-84 was contrary to the trend for the other age groups, whose proportion of the population and discrete patients tended to remain at 1982-83 levels.**

6.2 PHYSICIANS SEEN BY PATIENTS

Universality with free access to the health care system has been postulated as a factor in the increased utilization of medical services. Increasing numbers of physicians seen by patients can be a result of patient initiated visits, increased numbers of referrals between physicians or the team approach by subspecialists to patient care.

To test the hypothesis that patients are seeing increasing numbers of physicians, the data in Tables 39 and 40 (date of service basis) were generated. A random sample of 1/5 of the AHCIP registrants was studied. The number of physicians and discrete patients were paired and recorded. The samples were taken from the 1979-80 and 1983-84 data on a date of service basis.

The physician-patient pairings were also broken down as to physician specialty classification, attempting to differentiate patient initiated visits from specialty referrals.

Figure 18 graphically portrays the percentage of the sample populations in each year against the numbers of physicians seen. From Figure 18 it can be seen that an increased proportion of patients saw greater numbers of physicians in 1983-84 than in 1979-80. Although these differences are small, the short five year span covered by the study must be taken into account. The shift for each point on the curve is uniform, suggesting that this is a valid trend.

Tables 39 and 40 give a breakdown of each level of physician visits into pairings with physicians by their specialty. The totals of this breakdown are given below, the percentages being the proportion of the total pairings for each specialty group.

Table 41

Patient Practitioner Pairing (From Tables 39-40)

Specialty	1979-80	1983-84
General Practice	582,518 (51.7%)	752,081 (53.5%)
Medical	120,422 (10.7%)	158,606 (11.3%)
Surgical	153,541 (13.6%)	166,051 (11.8%)
Laboratory	256,389 (22.8%)	311,891 (22.2%)
X-ray	14,104 (1.3%)	16,125 (1.2%)

Source - AHCIP Date of Service

The greatest increase in pairings was for general practitioners with a lesser increase for medical specialists, largely at the expense of surgical specialists. These data suggest that the trend to increased numbers of patient-physician pairings is predominantly with general practitioners, and to a lesser extent medical specialists. The magnitude of the difference between these two categories is in part due to the greater numbers of general practitioners than medical specialists.

Possible explanations for increased general practitioner pairings include the following. Walk-in clinics may be used in off hours for convenience, followed by a visit to the family physician. Some "doctor shopping" may contribute although a reason for an increase in this over the study period is not apparent. The increase may reflect a change in physician practice patterns. Group practices with coverage of vacations and off hours by partners may result in billings under several general practitioners for a sequence of visits for the same illness. It is not possible to measure which of, or to what extent, the above factors contribute.

The increase in numbers of medical specialists and the trend to a subspecialist team approach in hospital care would both contribute to the increase.

Findings - Patient-Physician Visits

1. **There is a measurable increase in the number of physicians seen by discrete patients over the study period.**
2. **The increase in physician-patient pairings is predominantly in general practice, and to a lesser extent the medical specialties.**
3. **The increase could represent changes in physician practice patterns or patient generated visits, it not being possible to measure their respective contributions.**

6.3 MANPOWER - PHYSICIAN SUPPLY

That the numbers and specialty distribution of physicians will affect utilization has been postulated by some to be the significant determinant of utilization rates. (See Appendix D for sources)

Diverse and conflicting opinions re physician manpower became evident during the Committee's review. Bauer and Evans' conclusion that Canada will have a surplus of 1,013 physicians in the year 2000, given present medical school enrollment, and their recommendation to decrease medical school enrollment, have been questioned on the basis of their substantiating data. Watanabe documents the high proportion of graduates of foreign medical schools taking post-graduate training and being licensed in Canada, including Alberta (20-30%), suggesting that if immigration of foreign medical graduates declined the output of Canadian medical schools is not that inappropriate.

Swiniarski approached the relationship of physicians to utilization and concluded that shifts in supply and demand precluded definitely establishing physician numbers as causally related to utilization.

Comparison of the the specialist register of the College of Physicians and Surgeons of Alberta with specialists billing AHCIP revealed the latter to be only 85-90% of registered specialists.

Documentation in ACHIP Annual Reports of physician payments at different levels indicates many physicians do not derive their full income from AHCIP.

Given the above conflicting opinions and data and the studies on physician manpower now underway, the Committee elected not to comment further on these studies or to suggest recommendations.

The rate of growth of the physician population paralleled that of both the Alberta population and discrete patients, except for 1975 when the two year pre-licensure was introduced. Figure 19 graphically depicts AHCIP data on physicians, discrete patients and the Alberta population over the 10 year period, 1974-75 to 1983-84. The sudden and unpredicted cessation of population growth in 1982-83 was accompanied by continued physician growth, those entering practice having commenced medical school between 1974 and 1977. Discrete patients continued to increase in 1983-84 as a greater proportion of registrants utilized medical services.

Figure 20 illustrates the population per AHCIP physician ratio, and the discrete patient per AHCIP physician ratio for the 10 year period. The decrease in the ratios, 1979-1983, compensated for an increase in the preceding five years, the discrete patient per practitioner ratio of 639:1 in 1983-84 being still greater than the 625:1 in 1974-75.

Should the Alberta population stablize at the 1983-84 levels, these ratios will fall further given the 6-10 year delay in medical school enrollees entering practice.

Figure 12 and the discussion under Additional Studies, 5.4.7, has shown that an increasing proportion of physicians billing AHCIP are medical specialists as compared to general practitioners and surgical specialists.

Findings - Manpower:

1. **During the 10 year 1974-1983 period, the Alberta population and AHCIP discrete patients per practitioner increased, declining only after the population growth slowed down in 1982-83.**
2. **Population and discrete patient ratios to numbers of physicians are similar, 1974-75 and 1983-84.**
3. **Stabilization of the Alberta population at the 1983-84 level will further lower these ratios as medical school enrollees over the last 6-10 years enter practice.**

6.4 WALK-IN CLINICS

6.4.1 Introduction

The hypothesis that the opening of walk-in clinics during the 1979 to 1984 years of the study period was a significant contributor to increased utilization is considered in some quarters a major factor, increasing utilization of services.

Attempts to test this hypothesis proved difficult when the requirement for only objective data was applied. The following is a summary of the Committee's studies in this area.

The ability of patients to "walk in" to doctors' offices has always existed to varying degrees in the medical community. Emergency Rooms of hospitals derive all of the their patients in this manner.

In the 1970's the concept of walk-in clinics was initiated by practices open for extended hours and staffed by multiple physicians, many of whom worked limited shifts on a fee for service basis only. The number of such practices grew rapidly with practicing physicians extending their hours of operation and encouraging the walk-in patient. A North American trend to this type of practice is now evident and the recent incorporation of health centres into shopping malls is a logical extension of this aspect of marketing medical services to the public.

Emergency Rooms in the geographic vicinity of walk-in clinics have experienced a reduction in numbers of patients, thought to be a shift to the walk-in clinics.

To identify those practices which can be labelled walk-in clinics, as opposed to physician's offices with extended hours, is difficult unless arbitrary decisions are made. It was not considered appropriate for this Committee to study individual practices, this being a function of professional review carried out by the College of Physicians and Surgeons.

The logistics of identifying patient visits to such clinics and following up these visits to identify those to other physicians would require an expensive and time consuming computer program to assess AHCIP data retrospectively.

In view of the above problems, the Committee sought indirect evidence for the impact of walk-in clinics from the data base it reviewed.

6.4.2 Evidence Relating to Walk-In Clinics

a) Increase in A2 (first visit not complete exam) billings (Table 12, page 12):

The 40.3% increase in A2 billings, which is the code used for most walk-in clinic patients as compared to the 29.7% increase in A1's can be interpreted as reflecting in part walk-in clinic billing. The predominance of the A2 increase in 1982-83 with its retention into 1983-84 can further be interpreted as the impact of walk-in clinic billings. No data is available as to whether 1982-83 was the time walk-in clinics expanded in that they had been in operation prior to the study period. Without identification of the source of A2 billings this remains an unprovable hypothesis.

b) The previously documented increase in general practitioner-patient pairings may in part reflect walk-in clinic visits followed by visits to the family physician. As previously noted, other explanations for this increase exist.

c) Indirect evidence for a shift from Emergency Rooms to walk-in clinics is suggested when the use of A30 and A31, Emergency Room visit benefits, is compared to the A2 used for walk-in clinic visits.

Table 42

Comparison A2 (Walk-in Clinics) vs. A30 and A31 (Emergency Room Duty)

Year	A2 (First visit) (in thousands)		A30 & A31 (Emergency Room Duty) (in thousands)	
1979-80	3,075		339	
1980-81	3,344	(+8.7%)	380	(+12.1%)
1981-82	3,508	(+4.9%)	431	(+13.4%)
1982-83	3,931	(12.1%)	479	(+11.1%)
1983-84	4,315	(9.8%)	467	(- 2.5%)
5 year increase		40.3%		37.8%

Source - Utilization Data Base

Using A2 vs. A30 and A31 as an indicator of walk-in clinic utilization, the growth in each was parallel until 1982-83, but in 1983-84 the 9.8% increase in A2 was accompanied by a decline of 2.5% in A30 and A31. This suggests a shift of visits from hospital Emergency Rooms to offices (walk-in clinics) in 1983-84.

The weakness of this comparison is as follows:

1) There are 10 times the number of A2's compared to A30 and A31.
2) The proportion of A2's from walk-in clinics is not known.

d) Pathology services that would be used by walk-in clinics are mainly among the 17 basic services defined above. The increase in these services was only 33.7% as opposed to a 29.7% increase in the category Office Visits and a 40.3% increase in A2's. Although speculative at best, the impact of walk-in clinics if significant should have increased the basic pathology services to a greater degree than occurred, suggesting their impact during the study period was not as great as has been suggested.

Alternatively, the increase in Pathology services was triple the increase in hospital out-patient laboratory units over the study period. One can speculate that this disproportion reflects Pathology procedures for walk-in clinics reducing the hospital out-patient laboratory units concurrent with reduced Emergency Room usage.

Findings - Walk-in Clinics:

1. Objective data to assess the impact of walk-in clinics on service utilization was not readily available.

2. Indirect evidence from the data reviewed suggests some contribution to increased service utilization by walk-in clinics during the study period, particularly in 1982-83, but the extent of this impact cannot be measured accurately.

3. Before the impact of walk-in clinics can be determined on service utilization, expensive and time consuming studies will be required along with a clearer definition of walk-in clinics.

7.0 INDICATORS AND INDICES OF UTILIZATION

7.1 INTRODUCTION

Patients, services and physicians are the objectively measurable indicators of utilization. Ratios between these indicators reflect their inter-relationship and allow for growth comparison. Services per thousand registrants is reported annually in the AHCIP report over the preceding 10 years.

The indicators and indices can be broken down as follows:

Indicators		Indices	
1. Patients	- population	1. Services/patient	-Services/population
	- registrants		-Services/registrant
	- discrete patients		-Services/discrete patient
2. Physicians		2. Services/physician	
3. Services		3. Patients/physician	-Population/physician
			-Registrant/physician
			-Discrete patient/ physician

As shown, the indicators can be expanded into five groups, depending on the patient population, giving seven possible indices. As previously shown, registrants parallel population, being greater by 2-4%, and can be used to illustrate both.

Further breakdowns are possible if physicians are categorized as to general practice or their specialty.

In order to include the five years prior to the study period, 10 year data based on date of payment was generated by AHCIP for the following tables and figures, each covering the 10 fiscal years 1974-75 to 1983-84.

- Table 43 - Five Medical Benefit Indicators
- Figure 21 - Graphic Display of Table 43
- Table 44 - Utilization Indices Derived from Table 43
  - Services/Population
  - Services/Registrant
  - Services/Discrete Patient
  - Services/Physician
  - Discrete Patients/Physician
- Figure 22 - Graph of Table 44

Table 45 - Indices for Patient Comparison
Discrete Patients/Population
Discrete Patients/Registrant
Table 46 - Indices for Population and Physician
Population/Physician
Discrete Patients/Physician
Figure 20 - Graphic Display of Table 46 (see Manpower section of Report)

7.2 INDICATORS

a) Patients

Growth of the three patient groups is given below with a breakdown into five year segments.

Table 43 (Summary)

Years	Population	Registrants	Discrete Patients
74-75 - 78-79	15.4%	12.5%	16.3%
79-80 - 83-84	9.7%	11.8%	15.8%
74-75 - 83-84	32.1%	30.9%	40.5%

The slowing of population growth in 1983-84 is not as evident for registrants as for population. Figure 21 illustrates a closer approximation of these two indicators over the 1979-1983 period.

Discrete patients showed a greater growth rate than the other two groups, particularly 1979-80 to 1983-84. Table 45 compares the increase in discrete patients as a proportion of the population and registrants that occurred in this latter five year period.

b) Physicians and Services

Growth of these indicators was:

Table 43 (Summary)

	Physicians	Services
1974-75 - 1978-79	8.4%	18.1%
1979-80 - 1983-84	22.3%	34.9%
1974-75 - 1983-84	37.5%	71.1%

Services grew at double the rate of physicians. Physician growth pattern was previously discussed (Manpower). Figure 21 illustrates the yearly growth.

7.3 INDICES OF UTILIZATION

a) Services, Patients, Physicians

Table 44 and Figure 22 document these indices.

Figure 22 illustrates how services/physician have grown at an almost linear rate over the 10 years, there being a reduced rate in the years 1977-78 and 1981-82. The rate of increase for the two years, 1981 - 1983, is similar to the preceding two years. Whether the reduced rate of growth in 1983-84 is a new trend or a repeat of a falloff prior to another growth spurt remains to be seen.

Contrasting this linear growth is the dramatic decline in discrete patients/physicians. The increase prior to 1980 may have reflected population growth paralleling physician growth. The decline in population growth following 1980-81 is reflected in a fall in discrete patients/physician but the number does not fall back to the level of 1974-75. With only five year study data (1979-80 - 1983-84) the impression of a falling discrete patient/physician ratio is gained. When interpreted in the light of 10 year data the fall is actually a return to the 1974-75 level. It can be postulated that during the late 70s population growth and demand for physician services was outstripping growth in the required numbers of physicians. Establishing the ideal ratio of patients to physicians is not possible despite many studies previously reviewed. Data for succeeding years will be of interest in view of Alberta's now stable population.

Services/registrant and services/discrete patient show parallel growth curves. The fact that services/discrete patient increased 21.7% whereas services/registrant increased 30.7% reflects the increasing proportion of registrants using medical services, in particular since 1981 when the two measures show their greatest divergence.

Using only services/registrant to measure utilization gives a mistaken impression of the increase. Services/discrete patient is a more accurate measure of utilization.

The accelerating rate of growth in services/registrant and discrete patient in 1981-83 corresponds to the slowing of population growth and is contributed to by the increasing number of services/physician, but services/physician show a slowing of the rate of growth in 1983-84 whereas services/discrete patient and per registrant continue the growth spurt that started the previous year.

Over the 10 year period the 24.4% increase in services/physician correlates well with the 21.7% increase in services/discrete patient.

b) Population/Practitioner

Table 46 and Figure 20, previously reviewed, illustrate the increase in both population and discrete patients/physician, peaking in 1979-80 with a decrease since that time due to the continuing entry of physicians into practice with a sudden cessation of population growth.

Findings - Indices of Utilization:

1. **The parallel growth rate in numbers of physicians and population prior to 1981, with a slow but acceptable increase in services/patient, was distorted by the sudden cessation of population growth in 1981-82 accompanied by an acceleration of services/patient and services/physician.**

2. **Services/discrete patient is a more reliable measure of utilization than services/registrant in view of the increasing proportion of registrants using medical services, particularly after 1979-80.**

3. **Increases in services/physician and services/discrete patient show similar growth rates over the 10 year period.**

4. **The fall in discrete patients/physician since 1979-80 must be interpreted in the light of the preceding five years when it increased. The rate of 639 discrete patients per physician in 1983-84 is still higher than the 625 in 1974-75.**

5. **Although the variation in indicators and indices can be documented, it is not possible to say what the optimal levels should be.**

APPENDIX A

DATA ANALYSIS METHODOLOGY

Utilization Data Base by Category

The AHCIP service data base from Schedule of Medical Benefit payments was modified, generating yearly reports on services for the fiscal years 1979-80 to 1983-84 inclusive. All data were assigned on a date of service basis and a printout of each of the 4,215 service codes was generated for the five year period with the yearly percent rate of increase, the five year accumulative percent increase, and the average yearly increase.

The services were categorized into the 13 categories used in the Annual Report: Consultations, Office Visits, Hospitals Visits, House Visits, Major Surgery, Minor Surgery, Surgical Assists, Anaesthesia, Obstetrics, Pathology, Radiology, Other Diagnostics, and Miscellaneous. The development of these categories and assignment of codes originated with a federal program in the early 1970's, the format having been retained in Alberta with little or no modification by the Department.

From this data base summary reports of services and payments in each of the 13 categories were generated along with the services per thousand registrants for each category. The latter format closely resembles Table 2 in the 1983-84 ACHIP Annual Report except for our data being on date of service rather that date of payment basis.

Supplementing the above, several summary reports of other Departmental data were generated.

Financial Data

The financial data used in the introduction is taken from AHCIP Annual Reports and is mainly on a date of payment basis.

Medical Benefits Indices

Medical benefit indices were developed from data in the Department, data from StatsCan, and the Alberta Bureau of Statistics. Physician numbers were obtained from the Registry of the College of Physicians and Surgeons and ACHIP billings.

Other Material

To assist in defining questions pertaining to possible causes of the increased utilization other data were generated by the Department and supplemented by previously published reports, information from the A.M.A. and from the College of Physicians and Surgeons. The above materials are documented with each section of the report.

APPENDIX B

DATA BASE FOR ANALYSIS OF MEDICAL SERVICE CATEGORIES

Data Base

Note: Report 1 and Report 2 are kept as references in the Department of Hospitals and Medical Care. Tables 5 - 9 are included in this report.

a) Report 1 - Fee Code Categories for the Fiscal Years 1979-80 to 1983-84. This 247 page report lists the 4,215 benefit codes under 13 categories with the 5 year, service, payment percent increases and the average yearly increases by date of service.

b) Report 2 - Fee Codes by Category Showing Fee Code Descriptions. A 137 page report defining each of the benefit code categories.

c) Table 5 - Fee Code Category Totals for the Fiscal Years 1979-80 to 1983-84. A summary of category totals by date of service.

d) Table 6 - Medical Services per Thousand Insured Residents According to Type of Service for the Fiscal Years 1979-80 to 1984-85. Comparable to Table 9.

e) Table 7 - Medical Services According to Type of Service for the Fiscal Years 1979-80 to 1984-85 - similar to Table 5 but including preliminary data for 1984-85.

f) Table 8 - Similar to Table 9 except that A29 was assigned to House Visit category.

g) Table 9 - Medical Services per Thousand Insured Residents According to Type of Service for Fiscal Years 1979-80 to 1983-84 by Date of Service with A29 assigned to Hospital Visits

h) AHCIP Annual Reports - 1979-80 to 1983-84.

APPENDIX C

DATA FOR POPULATION STUDIES

1. Population data for fiscal years 1979-80 to 1983-84 as of March 31 each year. - Table 36
   Displayed graphically - Figure 13

2. Population by age groups from StatsCan as of June 1st each year - Table 37
   Displayed as a bar histogram - Figure 14
   Displayed as a graph indexed to 1979-80 - Figure 13

3. Discrete medical patients by age groups from AHCIP for fiscal years 1979-80 to 1983-84 as of March 31 each year - Table 38
   Displayed as bar histogram - Figure 16
   Displayed graphically indexed to 1979-80 - Figure 17

APPENDIX D

MANPOWER PHYSICIAN SUPPLY STUDIES

1. Bauer, M. and Evans, R. - Riding North on a Southbound Horse? Expenditures, Prices, Utilization and Incomes in the Canadian Health Care System - A paper prepared for the Health Policy Conference on the Canadian Health Care System - Banff, Alberta, August 1984.
2. Moore, K.G. and Cheung, Y.M. - Comments on #1.
3. Swiniarski, J. - Utilization and Physician Concentration - A.M.A., November, 1984.
4. Annual Report, AHCIP, March 31, 1984
5. Breakdown of Registry of Specialists, College of Physicians and Surgeons of Alberta, 1979 - 1985.
6. AHCIP physicians' billing as to major specialty
7. Watanabe, M. - Medical Manpower Usage - College of Physicians and Surgeons of Alberta, 1985

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REPORT TO THE MINISTER
TABLES, GRAPHS & GLOSSARY
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5.	Page 8, 42	Fee Codes Category Totals for the Fiscal Years 1979/80 - 1983/84
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20.	Page 25	Laboratory Services for Lipid Studies For The Fiscal Years 1979/80 - 1983/84
21.	Page 26	Laboratory Services for Electrolytes For The Fiscal Years 1979/80 - 1983/84
22.	Page 26	Laboratory Services for Hemoglobin Electrophoresis For The Fiscal Years 1979/80 - 1983/84
23.	Page 27	Laboratory Services for Malaria Smear For The Fiscal Years 1979/80 - 1983/84

* Table incorporated in text in the report.

REFERENCES

24.	Page 27	Laboratory Services for Hematinic Factor Assay For The Fiscal Years 1979/80 - 1983/84
25.	Page 28	Laboratory Services for Occult Blood Stool For The Fiscal Years 1979/80 - 1983/84
26.	Page 28	Laboratory Services for Therapeutic Drug Monitoring For The Fiscal Years 1979/80 - 1983/84
27.	Page 28	Laboratory Services for Histopathology For The Fiscal Years 1979/80 - 1983/84
28.	Page 29	Laboratory Services for Pregancy Testing For The Fiscal Years 1979/80 - 1983/84
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* Table incorporated in text in the report.

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35.	Page 45	Medical Practitioners By Specialty
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44.	Page 57, 59	Utilization Indicies
45.	Page 58	Indices for Patient Comparison
46.	Page 58, 60	Indices for Population and Physicians

* Table incorporated in text in the report.

TABLE 2

MEDICAL SERVICES PER 1000 INSURED PERSONS

FISCAL YEARS	TOTAL SERVICES PER 1000 INSURED PERSONS	ANNUAL PERCENT CHANGE
1973/74	6807	
1974/75	7077	3.97
1975/76	7156	1.12
1976/77	7326	2.38
1977/78	7175	-2.06
1978/79	7434	3.61
1979/80	7670	3.17
1980/81	7839	2.20
1981/82	7857	.23
1982/83	8632	9.86
1983/84	9248	7.14
GRAND TOTAL 10 YEAR PERCENT CHANGE		35.86
AVERAGE ANNUAL PERCENT CHANGE		3.16

SOURCE: 1983/84 AHCIP ANNUAL REPORT

NOTE: DATE OF PAYMENT BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 3

ALBERTA HOSPITALS AND MEDICAL CARE
TOTAL EXPENDITURES FOR HEALTH CARE AND HOSPITALS

	79/80	80/81	81/82	82/83	83/84
Total AHCIP Expenditures	$301,241,660	$360,537,274 (19.68%)	$451,452,922 (25.22%)	$573,789,871 (27.10%)	$637,766,531 (11.15%)
Operating Support Acute Care Hospitals	$522,742,719	$650,794,724 (24.50%)	$828,446,808 (27.30%)	$1,105,102,720 (33.39 %)	$1,200,546,198 (8.64%)
Operating Support Extended Hospitals	$57,600,731	$69,450,060 (20.57%)	$90,492,914 (30.30%)	$128,003,807 (41.50%)	$150,716,091 (17.74%)
Operating Support Nursing Homes	$49,910,814	$57,822,292 (15.85%)	$66,002,743 (14.15%)	$85,648,505 (29.77%)	$95,513,217 (11.52%)
Capital Construction	$46,215,224	$93,358,743 (102.01%)	$107,665,168 (15.32%)	$216,271,252 (100.87%)	$265,293,104 (22.67%)
Administration	$18,468,255	$21,612,649 (17.03%)	$28,415,096 (31.47%)	$33,527,441 (17.99%)	$37,331,981 (11.35%)
TOTAL	$996,179,412	$1,253,575,742 (25.84%)	$1,572,475,651 (25.44%)	$2,142,343,596 (36.24%)	$2,387,167,122 (11.43%)

NOTES:

(a) Information is on a Date of Payment Basis
(b) Expenditures for the Alberta Health Care Insurance Plan (AHCIP) are Gross Expenditures, and not the excess of expenditure over revenues.
(c) (Figures in Parentheses represent Annual Percentage Change).

SOURCE:

(a) Alberta Hospitals and Medical Care Annual Report (AHMC) (Highlights)
(b) Alberta Health Care Insurance Division Annual Report (AHCIP)

TABLE 4

EXPENDITURES FOR ALBERTA HEALTH CARE INSURANCE PLAN

	79-80	80-81	81-82	82-83	83-84
Basic Health Services					
Medical	$233,011,339	$278,366,453 (19.46%)	$348,271,263 (25.11%)	$441,336,493 (26.72%)	$483,111,057 (9.47%)
Non-Medical	$17,572,655	$22,237,515 (26.55%)	$32,058,443 (44.16%)	$42,055,583 (31.18%)	$50,011,528 (18.92%)
Total Basic Services	$250,583,994	$300,603,968 (19.96%)	$380,329,706 (26.52%)	$483,392,076 (27.10%)	$533,122,585 (10.29%)
Other Health Services	$50,657,675	$59,933,306 (18.31%)	$71,123,216 (18.67%)	$90,397,795 (27.10%)	$104,643,946 (15.76%)
Total AHCIP Expenditures	$301,241,669	$360,537,274 (19.68%)	$451,452,922 (25.22%)	$573,789,871 (27.10%)	$637,766,531 (11.15%)

NOTES:

(a) Information is on a Date of Payment Basis

(b) Expenditures for the Alberta Health Care Insurance Plan (AHCIP) are Gross Expenditures, and not the excess of expenditure over revenues.

(c) (Figures in Parentheses represent Annual Percentage Change).

SOURCE:

(a) Alberta Hospitals and Medical Care Annual Report (Statement B)

SEPTEMBER, 1985

ALBERTA HEALTH CARE INSURANCE PLAN

FEE CODE CATEGORY TOTALS
FOR THE FISCAL YEARS 1979/80 - 1983/84

TABLE 5

	1979-1980 SERVICES AMT PAID	1980-1981 SERVICES AMT PAID	1981-1982 SERVICES AMT PAID	1982-1983 SERVICES AMT PAID	1983-1984 SERVICES AMT PAID	5 YEAR % SERVICES AMT PAID	AVG % SERVICES AMT PAID
CONSULTATIONS	458,180	498,167	541,906	627,760	681,875		
		(8.72%)	(8.77%)	(15.84%)	(8.62%)	48.62%	10.45%
	15,867,801	19,491,392	25,168,449	32,547,705	36,798,102		
		(22.83%)	(29.12%)	(29.31%)	(13.05%)	131.90%	23.40%
OFFICE VISITS	6,827,032	7,275,282	7,640,694	8,448,907	8,853,997		
		(6.56%)	(5.02%)	(10.57%)	(4.79%)	29.69%	6.71%
	93,013,293	112,551,756	141,511,989	175,456,491	189,190,148		
		(21.00%)	(25.73%)	(23.98%)	(7.82%)	103.40%	19.42%
HOSPITAL VISITS	1,766,238	1,714,181	1,704,808	1,905,372	1,905,478		
		(-2.94%)	(-.54%)	(11.76%)	(.00%)	7.88%	1.91%
	17,283,550	19,337,134	23,173,577	32,281,941	34,163,284		
		(12.40%)	(19.83%)	(39.30%)	(5.82%)	98.58%	18.70%
HOUSE VISITS	194,176	185,217	193,557	211,772	207,483		
		(-4.61%)	(4.50%)	(9.41%)	(-2.02%)	6.85%	1.67%
	2,812,564	3,061,387	3,778,771	5,101,962	5,168,665		
		(8.84%)	(23.43%)	(35.01%)	(1.30%)	83.77%	16.43%
MAJOR SURGERY	139,471	142,955	144,599	169,403	173,570		
		(2.49%)	(1.15%)	(17.15%)	(2.45%)	24.44%	5.62%
	21,778,780	24,374,870	28,791,433	37,050,663	39,349,409		
		(11.92%)	(18.11%)	(28.68%)	(6.20%)	80.67%	15.93%
MINOR SURGERY	208,938	231,211	240,195	262,487	271,864		
		(10.66%)	(3.88%)	(9.28%)	(3.57%)	30.11%	6.80%
	5,197,866	6,329,592	7,510,893	8,450,072	8,349,837		
		(21.77%)	(18.65%)	(12.51%)	(-1.18%)	60.63%	12.58%
SURGICAL ASSISTS	59,425	63,159	60,550	67,548	66,937		
		(6.28%)	(-4.13%)	(11.55%)	(-.90%)	12.64%	3.02%
	1,362,924	1,606,029	1,874,185	2,412,539	2,435,883		
		(17.83%)	(16.69%)	(28.72%)	(.96%)	78.72%	15.62%
OBSTETRICS	47,690	49,773	53,242	56,471	56,206		
		(4.36%)	(6.96%)	(6.06%)	(-.46%)	17.85%	4.19%
	7,426,712	9,291,720	11,493,448	13,442,851	13,849,730		
		(25.11%)	(23.69%)	(16.96%)	(3.02%)	86.48%	16.85%
ANAESTHESIA	309,156	319,604	332,765	384,231	392,017		
		(3.37%)	(4.11%)	(15.46%)	(2.02%)	26.80%	6.11%
	10,300,603	12,228,860	14,462,432	18,593,620	19,106,169		
		(18.71%)	(18.26%)	(28.56%)	(2.75%)	85.48%	16.70%
RADIOLOGY SERVICES	644,455	658,334	659,033	695,321	710,031		
		(2.15%)	(.10%)	(5.50%)	(2.11%)	10.17%	2.45%
	12,303,679	13,748,070	16,811,104	19,599,813	20,756,589		
		(11.73%)	(22.27%)	(16.58%)	(5.90%)	68.70%	13.96%
PATHOLOGY SERVICES	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	28,625,884	35,078,876	45,273,490	59,158,932	70,282,008		
		(22.54%)	(29.06%)	(30.67%)	(18.80%)	145.51%	25.17%
OTHER DIAGNOSTIC	1,294,502	1,399,327	1,487,124	1,640,256	1,832,493		
		(8.09%)	(6.27%)	(10.29%)	(11.71%)	41.55%	9.07%
	10,395,901	12,510,220	15,933,195	21,727,665	25,503,240		
		(20.33%)	(27.36%)	(36.36%)	(17.37%)	145.32%	25.15%
MISCELLANEOUS	70,495	163,291	192,427	227,122	247,041		
		(131.63%)	(17.84%)	(18.03%)	(8.77%)	250.43%	36.82%
	904,020	1,951,155	2,786,845	3,794,634	4,324,133		
		(115.83%)	(42.83%)	(36.16%)	(13.95%)	378.32%	47.88%
TOTAL	16,754,370	17,922,828	18,933,436	21,099,756	22,271,637		
		(6.97%)	(5.63%)	(11.44%)	(5.55%)	32.93%	7.37%
	227,193,584	271,561,064	338,569,012	429,618,893	469,277,195		
		(19.52%)	(24.67%)	(26.89%)	(9.23%)	106.55%	19.88%

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 6

MEDICAL SERVICES PER 1000 INSURED PERSONS
ACCORDING TO TYPE OF SERVICE
FOR THE FISCAL YEARS 1979/80 - 1984/85

(6 YEAR SUMMARY)

TYPE OF SERVICE	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85(P)	GRAND PERCENTAGE CHANGE OVER 6 YEARS	AVERAGE % CHANGE OVER 6 YEARS
CONSULTATIONS	210	216 (2.85%)	224 (3.70%)	255 (13.83%)	279 (9.41%)	299 (7.16%)	42.38%	7.32%
OFFICE VISITS	3,122	3,154 (1.02%)	3,153 (-.03%)	3,429 (8.75%)	3,622 (5.62%)	3,809 (5.16%)	22.00%	4.05%
HOSPITAL VISITS	808	743 (-8.04%)	704 (-5.24%)	773 (9.80%)	779 (.77%)	759 (-2.56%)	-6.06%	-1.24%
HOUSE VISITS	89	80 (-10.11%)	80 (.00%)	86 (7.50%)	84 (-2.32%)	128 (52.38%)	43.82%	7.53%
MAJOR SURGERY	64	62 (-3.12%)	60 (-3.22%)	69 (15.00%)	71 (2.89%)	74 (4.22%)	15.62%	2.94%
MINOR SURGERY	96	100 (4.16%)	99 (-1.00%)	107 (8.08%)	111 (3.73%)	114 (2.70%)	18.75%	3.49%
SURGICAL ASSISTS	27	27 (.00%)	25 (-7.40%)	27 (8.00%)	27 (.00%)	28 (3.70%)	3.70%	.73%
OBSTETRICS	22	22 (.00%)	22 (.00%)	23 (4.54%)	22 (-4.34%)	22 (.00%)	.00%	.00%
ANAESTHESIA	141	139 (-1.41%)	137 (-1.43%)	156 (13.86%)	160 (2.56%)	169 (5.62%)	19.85%	3.68%
RADIOLOGY SERVICES	295	285 (-3.38%)	272 (-4.56%)	282 (3.67%)	290 (2.83%)	306 (5.51%)	3.72%	.73%
PATHOLOGY SERVICES	2,165	2,264 (4.57%)	2,345 (3.57%)	2,598 (10.78%)	2,812 (8.23%)	3,041 (8.14%)	40.46%	7.03%
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	592	607 (2.53%)	614 (1.15%)	666 (8.46%)	749 (12.46%)	800 (6.80%)	35.13%	6.20%
MISCELLANEOUS	32	71 (121.87%)	79 (11.26%)	92 (16.45%)	101 (9.78%)	119 (17.82%)	271.87%	30.04%
TOTAL	7,663	7,771 (1.40%)	7,814 (.55%)	8,562 (9.57%)	9,112 (6.42%)	9,674 (6.16%)	26.24%	4.77%
SURCHARGE SERVICES	0	0	0	25	36	39		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS
(P) 84/85 DATA ARE PRELIMINARY DATA AS OF JUNE 30, 1985

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 8

MEDICAL SERVICES PER 1000 INSURED PERSONS
ACCORDING TO TYPE OF SERVICE
FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80	1980/81	1981/82	1982/83	1983/84	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
CONSULTATIONS	210	216 (2.85%)	224 (3.70%)	255 (13.83%)	279 (9.41%)	32.85%	7.36%
OFFICE VISITS	3,122	3,154 (1.02%)	3,153 (-.03%)	3,429 (8.75%)	3,622 (5.62%)	16.01%	3.78%
HOSPITAL VISITS	752	683 (-9.17%)	645 (-5.56%)	757 (17.36%)	779 (2.90%)	3.59% **	.88% **
HOUSE VISITS	144	141 (-2.08%)	138 (-2.12%)	102 (-26.08%)	84 (-17.64%)	-41.66% **	-12.60% **
MAJOR SURGERY	64	62 (-3.12%)	60 (-3.22%)	69 (15.00%)	71 (2.89%)	10.93%	2.62%
MINOR SURGERY	96	100 (4.16%)	99 (-1.00%)	107 (8.08%)	111 (3.73%)	15.62%	3.69%
SURGICAL ASSISTS	27	27 (.00%)	25 (-7.40%)	27 (8.00%)	27 (.00%)	.00%	.00%
OBSTETRICS	22	22 (.00%)	22 (.00%)	23 (4.54%)	22 (-4.34%)	.00%	.00%
ANAESTHESIA	141	139 (-1.41%)	137 (-1.43%)	156 (13.86%)	160 (2.56%)	13.47%	3.21%
RADIOLOGY SERVICES	295	285 (-3.38%)	272 (-4.56%)	282 (3.67%)	290 (2.83%)	-1.69%	-.42%
PATHOLOGY SERVICES	2,165	2,264 (4.57%)	2,345 (3.57%)	2,598 (10.78%)	2,812 (8.23%)	29.88%	6.75%
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	592	607 (2.53%)	614 (1.15%)	666 (8.46%)	749 (12.46%)	26.52%	6.05%
MISCELLANEOUS	32	71 (121.87%)	79 (11.26%)	92 (16.45%)	101 (9.78%)	215.62%	33.28%
TOTAL	7,663	7,771 (1.40%)	7,814 (.55%)	8,562 (9.57%)	9,112 (6.42%)	18.90%	4.42%
SURCHARGE SERVICES	0	0	0	25	36		

SOURCE: UTILIZATION DATA BASE - (** FEE CODE A29 WITHIN HOUSE VISITS)
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

MEDICAL SERVICES

ACCORDING TO TYPE OF SERVICE

FOR THE FISCAL YEARS 1979/80 - 1984/85
(6 YEAR SUMMARY)

TYPE OF SERVICE	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85(P)	GRAND PERCENTAGE CHANGE OVER 6 YEARS	AVERAGE % CHANGE OVER 6 YEARS
CONSULTATIONS	458,180	498,167 (8.72%)	541,906 (8.77%)	627,760 (15.84%)	681,875 (8.62%)	717,418 (5.21%)	56.57%	9.38%
OFFICE VISITS	6,827,032	7,275,282 (6.56%)	7,640,694 (5.02%)	8,448,907 (10.57%)	8,853,997 (4.79%)	9,123,844 (3.04%)	33.64%	5.97%
HOSPITAL VISITS	1,766,238	1,714,181 (-2.94%)	1,704,808 (-.54%)	1,905,372 (11.76%)	1,905,478 (.00%)	1,819,886 (-4.49%)	3.03%	.60%
HOUSE VISITS	194,176	185,217 (-4.61%)	193,557 (4.50%)	211,772 (9.41%)	207,483 (-2.02%)	308,871 (48.86%)	59.06%	9.72%
MAJOR SURGERY	139,471	142,955 (2.49%)	144,599 (1.15%)	169,403 (17.15%)	173,570 (2.45%)	179,353 (3.33%)	28.59%	5.15%
MINOR SURGERY	208,938	231,211 (10.66%)	240,195 (3.88%)	262,487 (9.28%)	271,864 (3.57%)	274,955 (1.13%)	31.59%	5.64%
SURGICAL ASSISTS	59,425	63,159 (6.28%)	60,550 (-4.13%)	67,548 (11.55%)	66,937 (-.90%)	69,040 (3.14%)	16.18%	3.04%
OBSTETRICS	47,690	49,773 (4.36%)	53,242 (6.96%)	56,471 (6.06%)	56,206 (-.46%)	52,900 (-5.88%)	10.92%	2.09%
ANAESTHESIA	309,156	319,604 (3.37%)	332,765 (4.11%)	384,231 (15.46%)	392,017 (2.02%)	404,974 (3.30%)	30.99%	5.54%
RADIOLOGY SERVICES	644,455	658,334 (2.15%)	659,033 (.10%)	695,321 (5.50%)	710,031 (2.11%)	734,446 (3.43%)	13.96%	2.64%
PATHOLOGY SERVICES	4,734,612	5,222,327 (10.30%)	5,682,536 (8.81%)	6,403,106 (12.68%)	6,872,645 (7.33%)	7,284,847 (5.99%)	53.86%	9.00%
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	1,294,502	1,399,327 (8.09%)	1,487,124 (6.27%)	1,640,256 (10.29%)	1,832,493 (11.71%)	1,916,702 (4.59%)	48.06%	8.16%
MISCELLANEOUS	70,495	163,291 (131.63%)	192,427 (17.84%)	227,122 (18.03%)	247,041 (8.77%)	286,103 (15.81%)	305.84%	32.33%
TOTAL	16,754,370	17,922,828 (6.97%)	18,933,436 (5.63%)	21,099,756 (11.44%)	22,271,637 (5.55%)	23,173,339 (4.04%)	38.31%	6.70%
SURCHARGE SERVICES	0	0	0	62,559	88,969	93,602		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS
(P) 84/85 DATA ARE PRELIMINARY DATA AS OF JUNE 30, 1985

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

MEDICAL SERVICES PER 1000 INSURED PERSONS

TABLE 9

ACCORDING TO TYPE OF SERVICE

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80	1980/81	1981/82	1982/83	1983/84	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
CONSULTATIONS	210	216 (2.85%)	224 (3.70%)	255 (13.83%)	279 (9.41%)	32.85%	7.36%
OFFICE VISITS	3,122	3,154 (1.02%)	3,153 (-.03%)	3,429 (8.75%)	3,622 (5.62%)	16.01%	3.78%
HOSPITAL VISITS	808	743 (-8.04%)	704 (-5.24%)	773 (9.80%)	779 (.77%)	-3.58%	-.91%
HOUSE VISITS	89	80 (-10.11%)	80 (.00%)	86 (7.50%)	84 (-2.32%)	-5.61%	-1.43%
MAJOR SURGERY	64	62 (-3.12%)	60 (-3.22%)	69 (15.00%)	71 (2.89%)	10.93%	2.62%
MINOR SURGERY	96	100 (4.16%)	99 (-1.00%)	107 (8.08%)	111 (3.73%)	15.62%	3.69%
SURGICAL ASSISTS	27	27 (.00%)	25 (-7.40%)	27 (8.00%)	27 (.00%)	.00%	.00%
OBSTETRICS	22	22 (.00%)	22 (.00%)	23 (4.54%)	22 (-4.34%)	.00%	.00%
ANAESTHESIA	141	139 (-1.41%)	137 (-1.43%)	156 (13.86%)	160 (2.56%)	13.47%	3.21%
RADIOLOGY SERVICES	295	285 (-3.38%)	272 (-4.56%)	282 (3.67%)	290 (2.83%)	-1.69%	-.42%
PATHOLOGY SERVICES	2,165	2,264 (4.57%)	2,345 (3.57%)	2,598 (10.78%)	2,812 (8.23%)	29.88%	6.75%
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	592	607 (2.53%)	614 (1.15%)	666 (8.46%)	749 (12.46%)	26.52%	6.05%
MISCELLANEOUS	32	71 (121.87%)	79 (11.26%)	92 (16.45%)	101 (9.78%)	215.62%	33.28%
TOTAL	7,663	7,771 (1.40%)	7,814 (.55%)	8,562 (9.57%)	9,112 (6.42%)	18.90%	4.42%
SURCHARGE SERVICES	0	0	0	25	36		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 10

CATEGORIES IN DECREASING ORDER OF 5 YEAR INCREASES

CATEGORY	1983 -	1984	SERVICES 5 YRS % INCREASE	SERVICES		AVERAGE YEARLY % INCREASE PER 1,000 REGISTRANTS
	SERVICES % TOTAL	PAYMENTS % TOTAL		AVERAGE YR % INCREASE	82-83 % INCREASE	
MISCELLANEOUS	1.1	0.9	+250.4	+47.9	+18.0	+33.3
CONSULTATIONS	3.1	7.8	+48.8	+10.5	+15.8	+7.4
PATHOLOGY	30.9	15.0	+45.2	+9.8	+12.7	+6.8
OTHER DIAGNOSTIC	8.2	5.4	+41.6	+9.1	+10.3	+6.1
ALL SERVICES	100.00	100.00	+32.9	+7.4	+11.4	+4.4
MINOR SURGERY	1.2	1.8	+30.1	+6.8	+9.3	+3.7
OFFICE VISITS	39.8	40.3	+29.7	+6.7	+10.6	+3.8
ANESTHESIA	1.8	4.1	+26.8	+6.1	+15.5	+3.2
MAJOR SURGERY	0.8	8.4	+24.4	+5.6	+17.2	+2.6
OBSTETRICS	0.3	3.0	+17.9	+4.2	+6.1	0
SURGICAL ASSISTS	0.3	0.5	+12.6	+3.0	+11.6	0
HOSPITAL VISITS	8.6	7.3	+7.9	+1.9	+11.8	-0.9
RADIOLOGY	3.2	4.4	+10.2	+2.5	+5.5	-0.4
HOUSE VISITS	0.9	1.1	+6.9	+1.7	+9.4	-1.4

SOURCE: Utilization Data Base
NOTE: Date of Service Basis

TABLE 17

COMPARABLE PROVINCIAL LABORATORY SPECIMENS AND AHCIP SERVICES

	1979		1983-84	
	PROV. LAB. SPECIMENS	AHCIP SERVICES	PROV. LAB SPECIMENS	AHCIP SERVICES
TOTAL COMPARABLE	(654,586)	857,444	(626,927)	1,398,260
			(-4.4%)	(+63.1%)
BACTERIAL CULTURES	235,371	529,845	196,102	870,976
(E258,E259,E271 less tbc)			(-16.7%)	(+64.4%)
SENSITIVITIES	--	166,335	--	205,987
(E254,E255)				(23.8%)
TBC CULTURE SMEARS	25,515	100	26,614	399
			(+4.3%)	(+299%)
PARASITOLOGY PREP.	59,418	84,373	67,109	198,327
(E263,E265,E262,E262A)			(+12.9%)	(+135.1%)
VIROLOGY	80,680	--	139,632	--
			(+73.0%)	
RUBELLA SEROLOGY	47,072	23,026	55,303	44,527
(E499)			(+17.5%)	(+93.4)
SYPHILIS SEROLOGY	206,530	53,765	142,167	78,044
(E283)			(-31.2%)	(+45%)

SOURCE: AHCIP - Date of Payment AHCIP claims data.
Provincial Laboratory - Department of Social Services and Community Health

NOTE: 1) Both the provincial labs and AHCIP funded labs provided pathology services not included in this table. The totals refer to the number of comparable specimens (used by Provincial Labs) and Services (used by AHCIP).

2) The Provincial Lab reported in a Calendar year basis in 1979 and a Fiscal Year Basis in 1983/84.

TABLE 18

LABORATORY SERVICES

TOP 17 OF 416 BY NUMBER OF SERVICES

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
CBC E1, E14, E29	543,945	592,298	628,051	698,264	734,865		
		(8.88%)	(6.03%)	(11.17%)	(5.24%)	35.09%	7.81%
	(11.48%)	(11.34%)	(11.05%)	(10.90%)	(10.69%)		
URINALYSIS E151, E152	755,768	824,573	860,501	972,686	1,008,942		
		(9.10%)	(6.78%)	(10.46%)	(3.72%)	33.49%	7.49%
	(15.96%)	(15.78%)	(15.49%)	(15.19%)	(14.68%)		
M-12 E150	316,041	355,736	382,357	428,452	447,164		
		(12.56%)	(7.48%)	(12.05%)	(4.36%)	41.48%	9.06%
	(6.67%)	(6.81%)	(6.72%)	(6.69%)	(6.50%)		
ROUTINE CULT. & SMEARS	703,353	760,757	836,167	965,074	1,080,939		
E258, E259, E271		(8.16%)	(9.91%)	(15.41%)	(12.00%)	53.68%	11.34%
E254, E255	(14.85%)	(14.56%)	(14.71%)	(15.07%)	(15.72%)		
CYTOL. SMEAR E311	292,794	309,162	314,874	337,506	345,058		
		(5.59%)	(1.84%)	(7.18%)	(2.23%)	17.85%	4.19%
	(6.18%)	(5.92%)	(5.54%)	(5.27%)	(5.02%)		
PREGNANCY TEST E411	85,247	95,390	106,592	111,392	106,420		
		(11.89%)	(11.74%)	(4.50%)	(-4.46%)	24.83%	5.70%
	(1.80%)	(1.82%)	(1.87%)	(1.73%)	(1.54%)		
GLUCOSE E92	108,265	113,883	119,759	137,580	148,956		
		(5.18%)	(5.15%)	(14.88%)	(8.26%)	37.58%	8.30%
	(2.28%)	(2.18%)	(2.10%)	(2.14%)	(2.16%)		
HEMOGLOBIN E2	246,657	263,440	262,152	258,854	255,241		
		(6.80%)	(-.48%)	(-1.25%)	(-1.39%)	3.48%	.85%
	(5.20%)	(5.04%)	(4.61%)	(4.04%)	(3.71%)		
SED. RATE E6	227,701	239,063	241,148	253,420	257,703		
		(4.98%)	(.87%)	(5.08%)	(1.69%)	13.17%	3.14%
	(4.80%)	(4.57%)	(4.24%)	(3.95%)	(3.74%)		
ECG (TECHNICAL) B438	122,193	135,263	141,450	155,486	161,439		
		(10.69%)	(4.57%)	(9.92%)	(3.82%)	32.11%	7.21%
	(2.58%)	(2.59%)	(2.48%)	(2.42%)	(2.34%)		
SUM OF 17	3,401,964	3,689,565	3,913,051	4,318,714	4,546,727		
		(8.45%)	(6.05%)	(10.36%)	(5.27%)	33.65%	7.52%
	(71.85%)	(70.64%)	(68.86%)	(67.44%)	(66.15%)		
SUM OF OTHER 399	1,332,648	1,532,762	1,769,485	2,084,392	2,325,918		
		(15.01%)	(15.44%)	(17.79%)	(11.58%)	74.53%	14.94%
	(28.14%)	(29.35%)	(31.13%)	(32.55%)	(33.84%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 19

LABORATORY SERVICES

FOR TYHROID FUNCTION TESTING

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E350 T3 UPTAKE	181,382	208,687	230,046	254,189	166,543		
		(15.05%)	(10.23%)	(10.49%)	(-34.48%)	-8.18%	-2.11%
	(3.83%)	(3.99%)	(4.04%)	(3.96%)	(2.42%)		
E353 T4 + FTI	16,428	13,171	14,352	16,721	17,938		
		(-19.82%)	(8.96%)	(16.50%)	(7.27%)	9.19%	2.22%
	(.34%)	(.25%)	(.25%)	(.26%)	(.26%)		
E550U T4	0	0	0	6,948	122,981		
		(.00%)	(.00%)	(.00%)	(670.02%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.10%)	(1.78%)		
E550M T3 RIA	0	0	0	897	21,916		
		(.00%)	(.00%)	(.00%)	(343.25%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.01%)	(.31%)		
E550T TSH	0	0	4,509	52,296	80,301		
		(.00%)	(.00%)	(59.81%)	(53.55%)	.00%	.00%
	(.00%)	(.00%)	(.07%)	(.81%)	(1.16%)		
TOTAL	197,810	221,858	248,907	331,051	409,679		
		(12.15%)	(12.19%)	(33.00%)	(23.75%)	107.10%	19.96%
	(4.17%)	(4.24%)	(4.38%)	(5.17%)	(5.96%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

FOR LIPID STUDIES

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E77 CHOLESTEROL	16,476 (.34%)	13,072 (-20.66%) (.25%)	12,116 (-7.31%) (.21%)	11,837 (-2.30%) (.18%)	16,780 (41.75%) (.24%)	1.84%	.45%
E142 TRIGLYCERIDES	28,701 (.60%)	26,618 (-7.25%) (.50%)	26,783 (.61%) (.47%)	26,944 (.60%) (.42%)	34,501 (28.04%) (.50%)	20.20%	4.70%
E108 LIPOPROTEIN	5,651 (.11%)	4,920 (-12.93%) (.09%)	5,007 (1.76%) (.08%)	5,477 (9.38%) (.08%)	6,383 (16.54%) (.09%)	12.95%	3.09%
E519 HDL CHOL.	3,080 (.06%)	12,608 (309.35%) (.24%)	15,297 (21.32%) (.26%)	18,270 (19.43%) (.28%)	24,004 (31.38%) (.34%)	679.35%	67.08%
SUB TOTAL	53,908 (1.13%)	57,218 (6.14%) (1.09%)	59,203 (3.46%) (1.04%)	62,525 (5.61%) (.97%)	81,668 (30.61%) (1.18%)	51.49%	10.94%
E150 M-12 CHOL.	316,041 (6.67%)	355,736 (12.56%) (6.81%)	382,357 (7.48%) (6.72%)	428,452 (12.05%) (6.69%)	447,164 (4.36%) (6.50%)	41.48%	9.06%
TOTAL	369,949 (7.81%)	412,954 (11.62%) (7.90%)	441,560 (6.92%) (7.77%)	490,980 (11.19%) (7.66%)	528,832 (7.70%) (7.69%)	42.94%	9.34%
PATHOLOGY TOTAL	4,734,612 (100.00%)	5,222,327 (10.30%) (100.00%)	5,682,536 (8.81%) (100.00%)	6,403,106 (12.68%) (100.00%)	6,872,645 (7.33%) (100.00%)	45.15%	9.76%

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES
FOR ELECTROLYTES
FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E137 SODIUM	47,306	57,655	68,098	81,912	88,068		
		(21.87%)	(18.11%)	(20.28%)	(7.51%)	86.16%	16.80%
	(.99%)	(1.10%)	(1.19%)	(1.27%)	(1.28%)		
E127 POTASSIUM	67,673	80,298	93,227	108,429	118,568		
		(18.65%)	(16.10%)	(16.30%)	(9.35%)	75.20%	15.05%
	(1.42%)	(1.53%)	(1.64%)	(1.69%)	(1.72%)		
E76 CHLORIDE	41,432	51,088	60,803	73,355	78,911		
		(23.30%)	(19.01%)	(20.64%)	(7.57%)	90.45%	17.47%
	(.87%)	(.97%)	(1.06%)	(1.14%)	(1.14%)		
E81 CO2	30,164	38,528	48,215	60,236	65,506		
		(27.72%)	(25.14%)	(24.93%)	(8.74%)	117.16%	21.39%
	(.63%)	(.73%)	(.84%)	(.94%)	(.95%)		
TOTAL	186,575	227,569	270,343	323,932	351,053		
		(21.97%)	(18.79%)	(19.82%)	(8.37%)	88.15%	17.12%
	(3.94%)	(4.35%)	(4.75%)	(5.05%)	(5.10%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

FOR HEMOGLOBIN ELECTROPHORESIS

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E19 HB ELECT.	68	49	25	30	22		
		(-27.94%)	(-48.97%)	(20.00%)	(-26.66%)	-67.64%	-24.58%
	(.00%)	(.00%)	(.00%)	(.00%)	(.00%)		
E97A HB ELECT.	477	419	471	775	2,366		
		(-12.15%)	(12.41%)	(64.54%)	(205.29%)	396.01%	49.23%
	(.01%)	(.00%)	(.00%)	(.01%)	(.03%)		
E18 FETAL HB	16	8	7	174	138		
		(-50.00%)	(-12.50%)	(385.71%)	(-20.68%)	762.50%	71.37%
	(.00%)	(.00%)	(.00%)	(.00%)	(.00%)		
TOTAL	561	476	503	979	2,526		
		(-15.15%)	(5.67%)	(94.63%)	(158.01%)	350.26%	45.66%
	(.01%)	(.00%)	(.00%)	(.01%)	(.03%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

FOR MALARIA SMEAR

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E23 MALARIA SMEAR	243	526	485	466	559		
		(116.46%)	(-7.79%)	(-3.91%)	(19.95%)	130.04%	23.15%
	(.00%)	(.01%)	(.00%)	(.00%)	(.00%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

TABLE 24

LABORATORY SERVICES

FOR HEMATINIC FACTOR ASSAYS

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E401 FOLATE	2,090	4,937	11,549	17,788	6,003		
		(136.22%)	(133.92%)	(54.02%)	(-66.25%)	167.22%	30.18%
	(.04%)	(.09%)	(.20%)	(.27%)	(.08%)		
E401A RBC FOLATE	0	15	116	143	119		
		(.00%)	(673.33%)	(23.27%)	(-16.78%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.00%)	(.00%)		
E551B FOLATE	0	0	0	1,807	13,543		
		(.00%)	(.00%)	(.00%)	(649.47%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.02%)	(.19%)		
E103 IRON	14,835	18,229	20,603	23,321	26,367		
		(22.87%)	(13.02%)	(13.19%)	(13.06%)	77.73%	15.46%
	(.31%)	(.34%)	(.36%)	(.36%)	(.38%)		
E550D FERRITIN	0	0	657	8,058	10,032		
		(.00%)	(.00%)	(126.48%)	(24.49%)	.00%	.00%
	(.00%)	(.00%)	(.01%)	(.12%)	(.14%)		
E551A VIT. B12	0	0	0	1,677	12,575		
		(.00%)	(.00%)	(.00%)	(649.85%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.02%)	(.18%)		
SUB TOTAL	16,925	23,181	32,925	52,794	68,639		
		(36.96%)	(42.03%)	(60.34%)	(30.01%)	305.54%	41.90%
	(.35%)	(.44%)	(.57%)	(.82%)	(.99%)		
E513 RADIOIMMUNOASSAY	333	291	408	1,445	1,606		
		(-12.61%)	(40.20%)	(254.16%)	(11.14%)	382.28%	48.19%
	(.00%)	(.00%)	(.00%)	(.02%)	(.02%)		
TOTAL	17,258	23,472	33,333	54,239	70,245		
		(36.00%)	(42.01%)	(62.71%)	(29.51%)	307.02%	42.03%
	(.36%)	(.44%)	(.58%)	(.84%)	(1.02%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

TABLE 25

FOR OCCULT BLOOD STOOL

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E248 OCCULT BLOOD	8,963	13,306	16,770	23,373	27,488		
		(48.45%)	(26.03%)	(39.37%)	(17.60%)	206.68%	32.33%
	(.18%)	(.25%)	(.29%)	(.36%)	(.39%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

TABLE 26

FOR THERAPEUTIC DRUG MONITORING

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE		1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E516	ETHOSUXIMIDE	46	34	35	79	116		
			(-26.08%)	(2.94%)	(125.71%)	(46.83%)	152.17%	26.01%
		(.00%)	(.00%)	(.00%)	(.00%)	(.00%)		
E516A	DILANTIN	2,175	3,714	5,126	6,790	7,957		
			(70.75%)	(38.01%)	(32.46%)	(17.18%)	265.83%	38.30%
		(.04%)	(.07%)	(.09%)	(.10%)	(.11%)		
E516B	PHENOBARITOL	796	1,309	1,734	2,234	2,548		
			(64.44%)	(32.46%)	(28.83%)	(14.05%)	220.10%	33.75%
		(.01%)	(.02%)	(.03%)	(.03%)	(.03%)		
E516D	PRIMIDONE	3	28	173	252	281		
			(833.33%)	(517.85%)	(45.66%)	(11.50%)	9266.66%	211.09%
		(.00%)	(.00%)	(.00%)	(.00%)	(.00%)		
E516G	OTHER (EMIT)	394	1,189	3,392	7,550	12,415		
			(201.77%)	(185.28%)	(122.58%)	(64.43%)	3051.01%	136.92%
		(.00%)	(.02%)	(.05%)	(.11%)	(.18%)		
E550	DIGOXIN	0	0	1,292	12,011	13,384		
			(.00%)	(.00%)	(829.64%)	(11.43%)	.00%	.00%
		(.00%)	(.00%)	(.02%)	(.18%)	(.19%)		
E135	SALICYLATES	696	796	720	867	835		
			(14.36%)	(-9.54%)	(20.41%)	(-3.69%)	19.97%	4.65%
		(.01%)	(.01%)	(.01%)	(.01%)	(.01%)		
	TOTAL	4,110	7,070	12,472	29,783	37,536		
			(72.01%)	(76.40%)	(138.79%)	(26.03%)	813.28%	73.04%
		(.08%)	(.13%)	(.21%)	(.46%)	(.54%)		
PATHOLOGY TOTAL		4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
			(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
		(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

FOR HISTOPATHOLOGY

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E322 TISSUE GR. & MIC.	13,514 (.28%)	18,610 (37.70%) (.35%)	21,103 (13.39%) (.37%)	29,936 (41.85%) (.46%)	38,984 (30.22%) (.56%)	188.47%	30.32%
PATHOLOGY TOTAL	4,734,612 (100.00%)	5,222,327 (10.30%) (100.00%)	5,682,536 (8.81%) (100.00%)	6,403,106 (12.68%) (100.00%)	6,872,645 (7.33%) (100.00%)	45.15%	9.76%

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

TABLE 28

FOR PREGNANCY TESTING

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E411 URINE PREG.	85,247	95,390	106,592	111,392	106,420		
		(11.89%)	(11.74%)	(4.50%)	(-4.46%)	24.83%	5.70%
	(1.80%)	(1.82%)	(1.87%)	(1.73%)	(1.54%)		
E550K SERUM BHCG	0	0	414	6,634	9,655		
		(.00%)	(.00%)	(502.41%)	(45.53%)	.00%	.00%
	(.00%)	(.00%)	(.00%)	(.10%)	(.14%)		
TOTAL	85,247	95,390	107,006	118,026	116,075		
		(11.89%)	(12.17%)	(10.29%)	(-1.65%)	36.16%	8.02%
	(1.80%)	(1.82%)	(1.88%)	(1.84%)	(1.68%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

LABORATORY SERVICES

FOR MICROBIOLOGY

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
BACTERIAL CULTURE	536,650	600,672	675,830	786,202	875,011		
E258, E259, E271		(11.92%)	(12.51%)	(16.33%)	(11.29%)	63.05%	13.00%
	(11.33%)	(11.50%)	(11.89%)	(12.27%)	(12.73%)		
PARASITOLOGY	86,022	101,686	136,495	194,567	192,828		
E263, E265, E262, E2		(18.20%)	(34.23%)	(42.54%)	(-.89%)	124.16%	22.36%
	(1.82%)	(1.94%)	(2.40%)	(3.03%)	(2.80%)		
RUBELLA SEROLOGY	23,446	26,221	31,924	37,796	43,217		
E499		(11.83%)	(21.74%)	(18.39%)	(14.34%)	84.32%	16.51%
	(.49%)	(.50%)	(.56%)	(.59%)	(.62%)		
SYPHILLIS SEROLOGY	54,251	59,599	67,264	77,639	77,179		
E283		(9.85%)	(12.86%)	(15.42%)	(-.59%)	42.26%	9.21%
	(1.14%)	(1.14%)	(1.18%)	(1.21%)	(1.12%)		
TOTAL	700,369	788,178	911,513	1,096,204	1,188,235		
		(12.53%)	(15.64%)	(20.26%)	(8.39%)	69.65%	14.12%
	(14.79%)	(15.09%)	(16.04%)	(17.11%)	(17.28%)		
PATHOLOGY TOTAL	4,734,612	5,222,327	5,682,536	6,403,106	6,872,645		
		(10.30%)	(8.81%)	(12.68%)	(7.33%)	45.15%	9.76%
	(100.00%)	(100.00%)	(100.00%)	(100.00%)	(100.00%)		

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 30

LABORATORY SERVICES

FOR OTHER PROCEDURES

FOR THE FISCAL YEARS 1979/80 - 1983/84

TYPE OF SERVICE	1979/80 SERVICES % OF TOTAL	1980/81 SERVICES ANNUAL % % OF TOTAL	1981/82 SERVICES ANNUAL % % OF TOTAL	1982/83 SERVICES ANNUAL % % OF TOTAL	1983/84 SERVICES ANNUAL % % OF TOTAL	GRAND PERCENTAGE CHANGE OVER 5 YEARS	AVERAGE % CHANGE OVER 5 YEARS
E43 PROTHROMBIN TIME	34,129 (.72%)	36,984 (8.36%) (.70%)	38,215 (3.32%) (.67%)	38,648 (1.13%) (.60%)	44,473 (15.07%) (.64%)	30.30%	6.84%
E46 PTT	2,018 (.04%)	2,437 (20.76%) (.04%)	2,815 (15.51%) (.04%)	3,294 (17.01%) (.05%)	4,185 (27.04%) (.06%)	107.38%	20.00%
E59 AMYLASE	8,065 (.17%)	10,046 (24.56%) (.19%)	11,720 (16.66%) (.20%)	14,881 (26.97%) (.23%)	15,155 (1.84%) (.22%)	87.91%	17.08%
E68 CALCIUM	3,391 (.07%)	3,439 (1.41%) (.06%)	3,694 (7.41%) (.06%)	3,897 (5.49%) (.06%)	7,004 (79.72%) (.10%)	106.54%	19.88%
E84 CREATININE	16,686 (.35%)	21,100 (26.45%) (.40%)	25,686 (21.73%) (.45%)	30,311 (18.00%) (.47%)	36,619 (20.81%) (.53%)	119.45%	21.71%
E123 ALK. PHOSPHATASE	11,093 (.23%)	11,692 (5.39%) (.22%)	11,989 (2.54%) (.21%)	13,456 (12.23%) (.21%)	18,205 (35.29%) (.26%)	64.11%	13.18%
E125 INORG. PHOS.	1,831 (.03%)	1,880 (2.67%) (.03%)	1,970 (4.78%) (.03%)	2,032 (3.14%) (.03%)	5,037 (147.88%) (.07%)	175.09%	28.78%
E487 PLASMA CORTISOL	1,585 (.03%)	2,254 (42.20%) (.04%)	3,210 (42.41%) (.05%)	3,557 (10.80%) (.05%)	3,986 (12.06%) (.05%)	151.48%	25.92%
E99 IMMUNOGLOB.	5,251 (.11%)	5,721 (8.95%) (.10%)	6,076 (6.20%) (.10%)	8,133 (33.85%) (.12%)	9,759 (19.99%) (.14%)	85.85%	16.75%
E287 FANA	9,118 (.19%)	11,780 (29.19%) (.22%)	13,581 (15.28%) (.23%)	16,828 (23.90%) (.26%)	18,992 (12.85%) (.27%)	108.29%	20.13%
TOTAL	93,167 (1.96%)	107,333 (15.20%) (2.05%)	118,956 (10.82%) (2.09%)	135,037 (13.51%) (2.10%)	163,415 (21.01%) (2.37%)	75.40%	15.08%
PATHOLOGY TOTAL	4,734,612 (100.00%)	5,222,327 (10.30%) (100.00%)	5,682,536 (8.81%) (100.00%)	6,403,106 (12.68%) (100.00%)	6,872,645 (7.33%) (100.00%)	45.15%	9.76%

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

MEDICAL SERVICES BY QUARTER
ACCORDING TO TYPE OF SERVICE (IN 1,000 S)

TABLE 34
1 OF 3

FOR THE FISCAL YEARS 1979/80 - 1980/81

TYPE OF SERVICE	1979/80				1980/81			
	QTR 1	QTR 2	QTR 3	QTR 4	QTR 1	QTR 2	QTR 3	QTR 4
CONSULTATIONS	116.5	103.9	115.0	122.6	123.1	116.4	124.7	133.8
OFFICE VISITS	1,747.8	1,591.1	1,746.3	1,863.3	1,827.4	1,727.8	1,855.0	2,004.9
HOSPITAL VISITS	417.5	387.8	409.5	429.7	374.0	378.6	406.6	414.8
HOUSE VISITS	50.2	46.0	49.1	48.8	46.0	44.0	47.3	47.7
MAJOR SURGERY	36.0	31.9	34.1	37.2	35.0	34.7	35.6	37.5
MINOR SURGERY	54.7	53.3	48.9	51.9	60.9	59.1	54.4	56.9
SURGICAL ASSISTS	15.4	12.6	13.4	17.8	15.3	15.0	15.4	17.2
OBSTETRICS	12.1	11.7	11.6	12.1	12.2	12.6	12.3	12.5
ANAESTHESIA	78.1	71.5	76.5	82.9	75.9	77.6	81.2	84.7
RADIOLOGY SERVICES	168.5	141.9	157.6	176.2	165.2	152.3	162.3	178.3
PATHOLOGY SERVICES	1,165.5	1,068.1	1,169.6	1,331.2	1,279.3	1,229.9	1,284.1	1,429.0
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	336.1	303.2	318.0	337.0	356.0	333.9	342.6	366.8
MISCELLANEOUS	12.2	11.1	11.9	35.1	41.5	37.8	39.5	43.6
TOTAL	4,211.0	3,834.8	4,161.9	4,546.4	4,412.3	4,220.4	4,461.6	4,828.4

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

MEDICAL SERVICES BY QUARTER
ACCORDING TO TYPE OF SERVICE (IN 1,000 $)

TABLE 34
2 OF 3

FOR THE FISCAL YEARS 1981/82 - 1982/83

TYPE OF SERVICE	1981/82 QTR 1	QTR 2	QTR 3	QTR 4	1982/83 QTR 1	QTR 2	QTR 3	QTR 4
CONSULTATIONS	138.3	126.4	130.4	138.6	153.3	145.6	158.0	170.7
OFFICE VISITS	1,972.0	1,821.0	2,011.5	1,977.2	2,133.4	1,966.5	2,145.8	2,242.3
HOSPITAL VISITS	410.4	375.8	405.3	371.9	431.5	461.7	486.1	486.8
HOUSE VISITS	47.5	45.4	49.0	51.5	51.7	50.8	55.1	54.0
MAJOR SURGERY	38.9	35.0	36.6	34.0	43.2	40.3	40.8	45.0
MINOR SURGERY	64.3	64.4	58.3	55.0	70.1	68.5	61.0	65.2
SURGICAL ASSISTS	16.6	14.8	15.1	13.9	17.2	15.5	16.2	18.5
OBSTETRICS	13.4	13.6	12.9	13.2	14.3	14.4	13.6	13.9
ANAESTHESIA	87.0	81.0	86.5	78.1	97.4	91.3	93.3	101.5
RADIOLOGY SERVICES	169.9	152.0	163.3	173.7	175.6	160.6	170.4	188.6
PATHOLOGY SERVICES	1,407.0	1,324.1	1,432.8	1,522.0	1,571.5	1,499.8	1,581.4	1,753.5
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	391.5	361.6	377.2	358.4	409.6	388.1	409.2	435.5
MISCELLANEOUS	47.4	43.8	45.1	48.6	54.4	54.3	53.8	56.7
TOTAL	4,804.8	4,459.4	4,832.4	4,836.7	5,223.8	4,957.8	5,285.2	5,632.8

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

MEDICAL SERVICES BY QUARTER
ACCORDING TO TYPE OF SERVICE (IN 1,000 S)

TABLE 34
3 OF 3

FOR THE FISCAL YEARS 1983/84

TYPE OF SERVICE	1983/84 QTR 1	QTR 2	QTR 3	QTR 4
CONSULTATIONS	173.4	158.1	168.1	182.1
OFFICE VISITS	2,238.1	2,089.1	2,157.5	2,369.1
HOSPITAL VISITS	475.9	464.7	474.8	489.9
HOUSE VISITS	52.1	49.0	51.2	54.9
MAJOR SURGERY	45.4	41.6	40.9	45.4
MINOR SURGERY	74.0	71.7	62.8	66.3
SURGICAL ASSISTS	17.2	15.0	15.7	18.9
OBSTETRICS	14.7	14.5	13.3	13.5
ANAESTHESIA	100.3	93.4	94.9	102.6
RADIOLOGY SERVICES	182.5	166.1	168.5	192.8
PATHOLOGY SERVICES	1,728.9	1,634.6	1,649.9	1,862.6
OTHER DIAGNOSTIC AND THERAPEUTIC SERVICES	479.3	436.1	444.7	473.7
MISCELLANEOUS	62.0	59.2	57.8	60.4
TOTAL	5,644.4	5,293.8	5,400.5	5,932.7

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 35

MEDICAL PRACTITIONERS BY SPECIALTY

	1979/80	1980/81	1981/82	1982/83	1983/84
GENERAL PRACTITIONERS	1,484	1,558	1,656	1,749	1,834
		(4.99%)	(6.29%)	(5.62%)	(4.86%)
MEDICAL SPECIALTIES	547	586	615	671	712
		(7.13%)	(4.95%)	(9.11%)	(6.11%)
SURGERY SPECIALTIES	482	496	500	504	524
		(2.90%)	(.81%)	(.80%)	(3.97%)
LAB SPECIALISTS	37	42	39	44	46
		(13.51%)	(-7.14%)	(12.82%)	(4.55%)
X-RAY SPECIALISTS	94	94	99	103	117
		(0.0%)	(5.32%)	(4.04%)	(13.59%)
TOTAL	2,644	2,776	2,909	3,071	3,233
		(4.99%)	(4.79%)	(5.57%)	(5.28%)

SOURCE: AHCIP ANNUAL REPORT

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 36

POPULATION DATA FOR FISCAL YEARS 1979/80 to 1983/84

	1979/80	1980/81	1981/82	1982/83	1983/84	5 YEAR % CHANGE
# AHCIP REGISTERED PERSONS (a)	2,186,456	2,306,428 (5.49%)	2,423,043 (5.06%)	2,464,253 (1.70%)	2,443,943 (-0.82%)	11.78
ALBERTA POPULATION FROM STATS CANADA (b)	2,128,000	2,226,000 (4.61%)	2,306,000 (3.59%)	2,349,000 (1.86%)	2,349,000 (0.00%)	10.39
# DISCRETE PATIENTS (MEDICAL) (a)	1,784,045	1,879,463 (5.35%)	1,943,145 (3.39%)	2,041,349 (5.05%)	2,065,094 (1.16%)	+15.75
# IN-PROVINCE MEDICAL PRACTITIONERS (a)	2,644	2,776 (4.99%)	2,909 (4.79%)	3,071 (5.57%)	3,233 (5.28%)	22.27

NOTES:
(1) All population data are as of March 31 of the year.
(2) (Figures in parenthesis represent Annual Percent Change.)
(3) # of Discrete Medical Patients are those whose claims were paid during the respective fiscal year.

SOURCE:
(a) Alberta Health Care Insurance Plan Annual Reports
(b) Statistics Canada, as of November 1984 Revision

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 37

POPULATION BY AGE GROUP

AS OF JUNE 1 OF EACH YEAR

AGE GROUPS

ANNUAL ESTIMATE	1	1-4	5-14	15-24	25-44	45-64	65+	TOTAL
1980	38.0	141.4	346.6	462.4	644.1	350.1	158.0	2140.6
1981	40.1	147.8	353.7	478.6	694.7	359.0	163.4	2237.3
1982	41.3	153.4	358.4	482.5	743.4	369.1	168.9	2317.0
1983	40.3	156.8	357.3	468.7	775.8	377.2	173.9	2350.0
1984	45.8	161.2	352.1	440.9	789.2	381.4	178.3	2348.9
5 YEARS % CHANGES	20.5	14.0	1.3	-4.6	22.5	8.9	12.8	9.7

SOURCE: STATISTICS-CANADA INTER-CENSAL ESTIMATES PROGRAM
REVISIONS ARE AS OF NOVEMBER, 1984

TABLE 38

MEDICAL PATIENTS BY AGE GROUP
IN THOUSANDS

AS OF MARCH 31 FOR EACH FISCAL YEAR

AGE GROUPS

FISCAL YEAR	1	1-4	5-14	15-24	25-44	45-64	65+	TOTAL
79-80	31.2	133.4	271.7	391.7	526.3	283.7	146.0	1784.0
80-81	33.5	141.4	276.5	411.6	571.4	293.1	152.1	1879.6
81-82	35.3	147.9	278.1	418.5	609.0	296.9	157.5	1943.2
82-83	37.2	156.9	290.9	418.9	662.8	310.6	164.1	2041.4
83-84	35.7	161.1	298.8	399.4	683.1	317.0	170.1	2065.2
5 YEARS % CHANGES	14.42	20.76	9.97	1.97	29.79	11.74	16.51	15.76

SOURCE: AHCIP ANNUAL REPORTS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

NUMBER OF DOCTORS SEEN BY PATIENTS

TABLE 39

USING ONE-FIFTH OF THE REGISTRATIONS
FOR THE FISCAL YEAR 1979 / 1980

NUMBER OF DOCTORS SEEN	DISCRETE PATIENTS	TOTAL SERVICES	TYPE OF PATIENT/PRACTITIONER PAIRING				
			GENERAL	MEDICAL	SURGICAL	LAB	X-RAY
1	91,391	214,863	73,200	5,457	9,923	2,733	78
2	85,371	460,263	105,744	10,701	17,550	35,657	1,090
3	64,430	550,398	104,445	15,571	23,390	47,708	2,176
4	44,324	526,396	87,121	17,813	23,744	45,997	2,621
5	28,324	434,218	65,255	16,469	20,910	36,652	2,334
6	17,741	340,099	46,427	13,978	16,885	27,296	1,860
7	10,955	255,099	32,384	11,056	12,295	19,683	1,267
8	6,655	182,214	21,481	8,274	8,971	13,606	908
9	4,014	128,602	14,386	5,984	6,121	9,016	619
10	2,429	89,484	9,509	4,207	4,257	5,931	386
11	1,512	62,968	6,446	3,124	2,885	3,932	245
12	915	42,976	4,161	2,135	1,914	2,605	165
13	579	30,331	2,960	1,495	1,297	1,659	116
14	394	21,944	2,133	1,103	1,000	1,201	79
15	233	14,912	1,408	714	568	769	36
16	181	12,336	1,095	610	535	620	36
17	107	7,927	706	426	340	325	22
18	95	7,360	705	391	308	286	20
19	58	4,909	503	242	168	178	11
TWENTY OR MORE	161	15,758	2,449	672	480	535	35
TOTALS	359,869	3,403,057	582,518	120,422	153,541	256,309	14,104

NOTE : THE GROUPING CONSISTS OF :

1) GENERAL PRACTITIONERS,
2) MEDICAL SPECIALISTS (ANAESTHETISTS, DERMATOLOGISTS, INTERNISTS, NEUROLOGISTS, PAEDIATRICIANS, PSYCHIATRISTS, AND PHYSIATRISTS)
3) SURGICAL SPECIALISTS (GENERAL SURGEONS, UROLOLOGISTS, NEUROLOGICAL SURGEONS, THORACIC SURGEONS, OPTHALMOLOGISTS, OBSTETRICIANS-GYNECOLOGISTS, AND RHINO-OTOLARYNGOLOGISTS),
4) LABORATORY SPECIALISTS (PATHOLOGISTS, AND OTHER LABORATORIES),
5) RADIOLOGY

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

NUMBER OF DOCTORS SEEN BY PATIENTS

TABLE 40

USING ONE-FIFTH OF THE REGISTRATIONS
FOR THE FISCAL YEAR 1983 / 1984

NUMBER OF DOCTORS SEEN	DISCRETE PATIENTS	TOTAL SERVICES	TYPE OF PATIENT/PRACTITIONER FAIRING GENERAL	MEDICAL	SURGICAL	LAB	X-RAY
1	92,256	208,636	76,421	5,175	7,960	2,655	45
2	91,510	512,954	117,549	10,562	14,862	39,051	996
3	72,483	658,411	123,454	17,555	21,599	52,935	1,906
4	52,823	666,767	110,183	21,159	24,221	53,215	2,514
5	35,447	578,477	87,176	20,918	22,504	44,011	2,626
6	23,506	477,498	66,692	18,618	19,240	34,314	2,172
7	15,217	368,471	48,821	15,256	15,143	25,583	1,716
8	9,593	272,954	34,623	11,706	11,072	18,087	1,256
9	6,126	203,541	24,030	9,288	8,174	12,772	870
10	4,048	153,211	17,641	7,132	5,997	9,097	613
11	2,616	110,167	12,521	5,272	4,428	6,145	410
12	1,713	82,338	8,964	3,946	3,067	4,308	271
13	1,029	53,459	5,891	2,678	1,938	2,654	216
14	722	41,227	4,267	2,228	1,544	1,943	126
15	501	32,029	3,170	1,755	1,081	1,392	117
16	333	23,021	2,295	1,217	803	951	62
17	211	15,284	1,487	928	509	618	45
18	173	13,504	1,259	754	494	568	39
19	112	9,472	920	510	302	367	29
TWENTY OR MORE	371	38,251	4,717	1,949	1,113	1,225	96
TOTALS	410,790	4,519,672	752,081	158,606	166,051	311,891	16,125

NOTE : THE GROUPING CONSISTS OF :
1) GENERAL PRACTITIONERS,
2) MEDICAL SPECIALISTS (ANAESTHETISTS, DERMATOLOGISTS, INTERNISTS, NEUROLOGISTS, PAEDIATRICIANS, PSYCHIATRISTS, AND PHYSIATRISTS)
3) SURGICAL SPECIALISTS (GENERAL SURGEONS, UROLOLOGISTS, NEUROLOGICAL SURGEONS,THORACIC SURGEONS, OPTHALMOLOGISTS, OBSTETRICIANS-GYNECOLOGISTS, AND RHINO-OTOLARYNGOLOGISTS),
4) LABORATORY SPECIALISTS (PATHOLOGISTS, AND OTHER LABORATORIES),
5) RADIOLOGY

SOURCE: UTILIZATION DATA BASE
NOTE: DATE OF SERVICE BASIS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 43

MEDICAL BENEFIT INDICATORS

FISCAL YEARS	REGISTERED PERSONS(1)	DISCRETE PATIENTS(1)	MEDICAL PRACTITIONERS(1)	MEDICAL SERVICES(1)	POPULATION (STATS-CAN)(2)
74/75	1,867,162	1,469,436	2,352	13,072,629	1,778,300
75/76	1,920,360	1,534,948	2,382	13,605,905	1,838,000
76/77	1,996,128	1,612,614	2,399	14,459,450	1,912,700
77/78	2,034,392	1,647,493	2,467	14,432,386	1,983,100
78/79	2,100,646	1,708,975	2,549	15,442,367	2,052,700
79/80	2,186,456	1,784,045	2,644	16,573,282	2,140,600
80/81	2,306,428	1,879,463	2,776	17,861,365	2,237,300
81/82	2,423,043	1,943,145	2,909	18,823,111	2,317,000
82/83	2,464,253	2,041,349	3,071	21,043,099	2,350,000
83/84	2,443,943	2,065,094	3,233	22,360,803	2,348,900
10 YR INCREASE	30.89	40.54	37.46	71.05	32.09

NOTE: DATE OF PAYMENT

SOURCE: 1. AHCIP ANNUAL REPORTS

2. ALBERTA BUREAU OF STATISTICS (JUNE 1 OF EACH YEAR)

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 44

UTILIZATION INDICIES

FISCAL YEARS	SERVICES/ PATIENT	SERVICES/ REGISTRANT	SERVICES/ POPULATION	SERVICES/ PRACTITIONER	PATIENTS/ PRACTITIONER
74/75	8.90	7.00	7.35	5558.09	624.76
75/76	8.86	7.09	7.40	5711.97	644.39
76/77	8.97	7.24	7.56	6027.28	672.20
77/78	8.76	7.09	7.28	5850.18	667.81
78/79	9.04	7.35	7.52	6058.21	670.45
79/80	9.29	7.58	7.74	6268.26	674.75
80/81	9.50	7.74	7.98	6434.21	677.04
81/82	9.69	7.77	8.12	6470.65	667.98
82/83	10.31	8.54	8.95	6852.20	664.72
83/84	10.83	9.15	9.52	6916.43	638.75
10 YEAR INCREASE	21.71	30.68	29.50	24.44	2.24

NOTE: DATE OF PAYMENT

SOURCE: 1. AHCIP ANNUAL REPORTS
2. ALBERTA BUREAU OF STATISTICS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 45

INDICES FOR PATIENT COMPARISON

FISCAL YEARS	PATIENTS/ POPULATION	PATIENTS/ REGISTRANT
74/75	.83	.79
75/76	.84	.80
76/77	.84	.81
77/78	.83	.81
78/79	.83	.81
79/80	.83	.82
80/81	.84	.81
81/82	.84	.80
82/83	.87	.83
83/84	.88	.84
10 YEAR INCREASE	6.40	7.37

NOTE: DATE OF PAYMENT

SOURCE: 1. AHCIP ANNUAL REPORTS
2. ALBERTA BUREAU OF STATISTICS

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

TABLE 46

INDICES FOR POPULATION AND PHYSICIAN

FISCAL YEARS	PATIENTS/ PRACTITIONER	POPULATION/ PRACTITIONERS
74/75	624.76	756.08
75/76	644.39	771.62
76/77	672.20	797.29
77/78	667.81	803.85
78/79	670.45	805.30
79/80	674.75	809.61
80/81	677.04	805.94
81/82	667.98	796.49
82/83	664.72	765.22
83/84	638.75	726.54
10 YEAR INCREASE	2.24	(3.91)

SOURCE: 1. AHCIP ANNUAL REPORTS
2. ALBERTA BUREAU OF STATISTICS

NOTE: DATE OF PAYMENT

SEPTEMBER, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

GRAPHS

REFERENCES

1. Page 3 Canadian and U.S. Health Care Costs as a Percentage of Gross National Products - 1960 to 1982.
2. Page 4 Canadian Medical Services Per 1000 Population Compared to Alberta Medical Services Per 1000 Registrants 1979/80 to 1983/84
3. Page 4 Canadian Medical Payments Per 1000 Population Compared to Alberta Medicl Payments Per 1000 Registrants 1979/80 to 1983/84.
4. Page 7 Medical Benefit Indicators from 1979/80 to 1983/84 (Indexed to 1979/80)
5. Page 7 Expenditures for Hospitals and Health Care - 1979/80 and 1983/84.
6. Page 9 AHCIP Medical Services 1979/80 to 1983/84
7. Page 9, 10 AHCIP Medical Services Breakdown of Selected Types of Services 1979/80 to 1983/84 (Indexed to 1979/80)
8. Page 11, 17 Medical Services Per 1000 Registrants Breakdown of Selected Types of Services 1973/74 to 1983/84 (Indexed to 1973/74)
9. Page 21 AHCIP Pathology Services Breakdown of Selected Analyses 1979/80 to 1983/84
10. Page 39 AHCIP Medical Services Major Surgery and Comparable Categories 1979/80 to 1983/84 (Indexed to 1979/80)

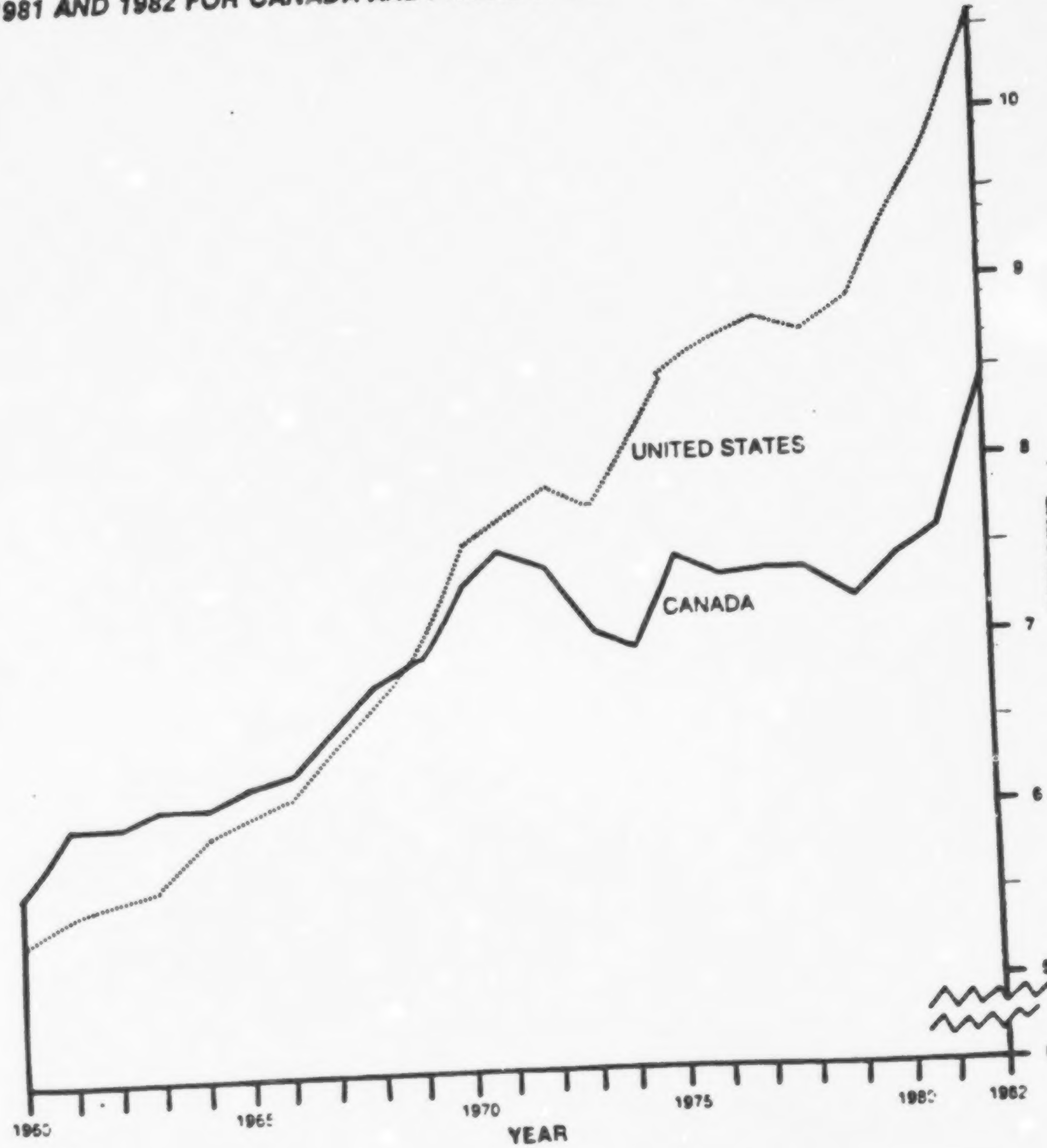
REFERENCES

11. Page 44	Number of Services by Quarter Major Surgery and Minor Surgery Fiscal Years 1979/80 - 1983/84 (Date of Service Basis)
12. Page 45, 53	Medical Practitioners by Specialty 1979/80 to 1983/84 (Indexed to 1979/80)
13. Page 49	Population Data For Fiscal Years 1979/80 to 1983/84
14. Page 49	Population by Age Group For Years 1980 to 1984
15. Page 49	Population by Age Group For Years 1980 to 1984
16. Page 49	Discrete Medical Patients By Age Groups For Fiscal Years 1979/80 to 1983/84
17. Page 49	Discrete Medical Patients for Fiscal Years 1979/80 to 1983/84
18. Page 51	Proportion of Patients Seeing More Than One Physician 1979/80 and 1983/84
19. Page 52	Alberta Population and AHCIP Physicians Indexed to 1974/75
20. Page 53,58,60	Population Per Practitioner Fiscal Years 1974/75 to 1983/84
21. Page 57, 58	Medical Indicators Indexed to 1974/75
22. Page 57, 59	Utilization Indexes 1974/75 to 1983/84

(1)

HEALTH EXPENDITURES AS PERCENTAGES OF GROSS NATIONAL PRODUCTS, CANADA AND UNITED STATES, 1960-1982

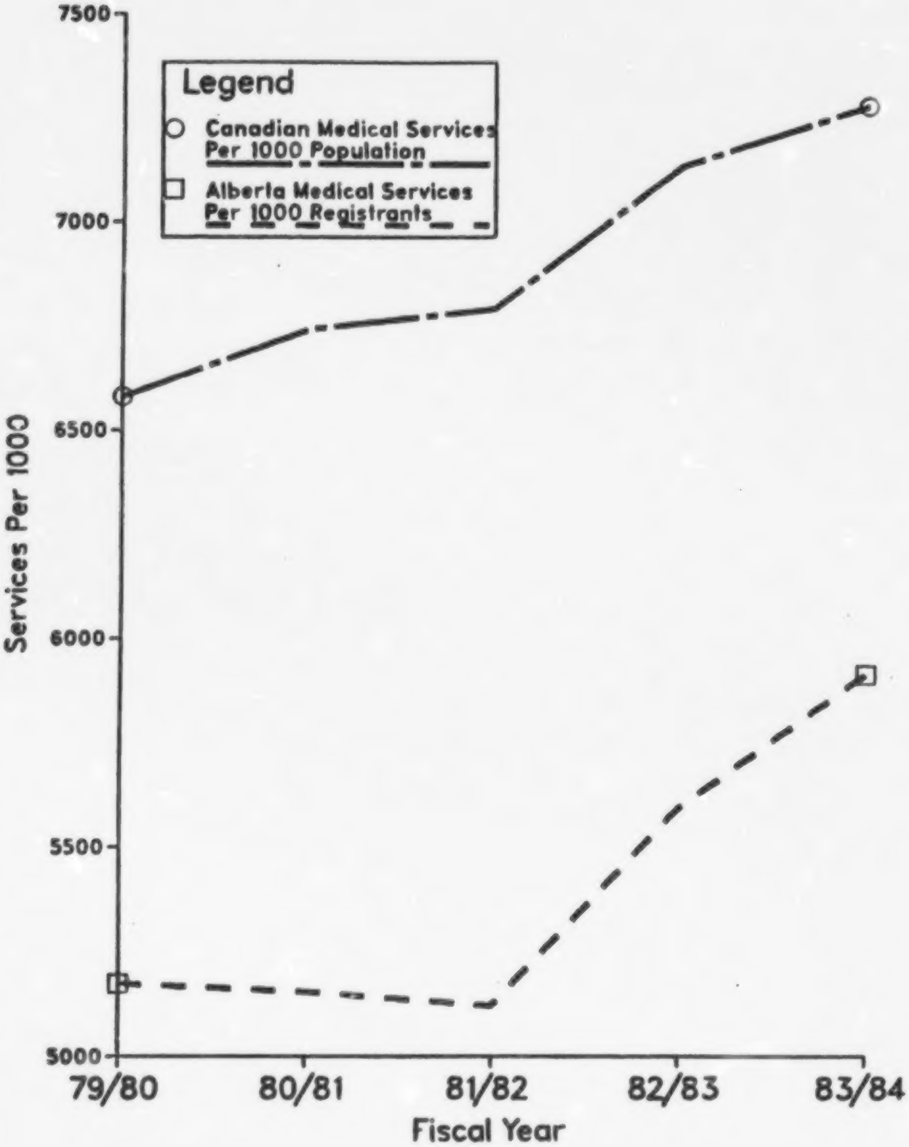
1981 AND 1982 FOR CANADA ARE PROVISIONAL



SOURCE:

1. National Health Expenditures in Canada 1970 - 1982
2. Health & Welfare Canada

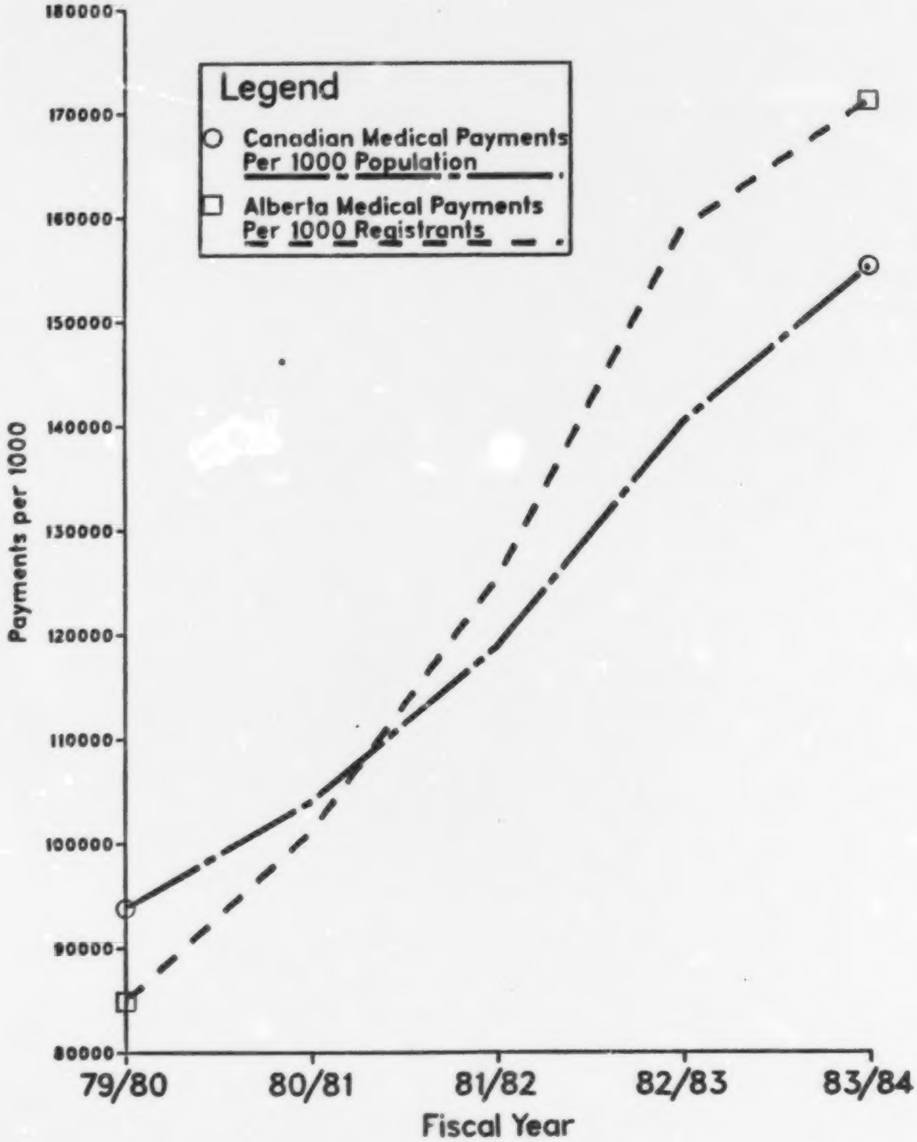
CANADIAN MEDICAL SERVICES PER 1000 POPULATION COMPARED TO ALBERTA MEDICAL SERVICES PER 1000 REGISTRANTS 1979/80 to 1983/84



SOURCE: (a) Canadian – Health and Welfare Canada Report
(b) Alberta – Utilization Data Base – Date of Service
NOTE: Medical Services exclude Lab, Xray and Miscellaneous Services

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

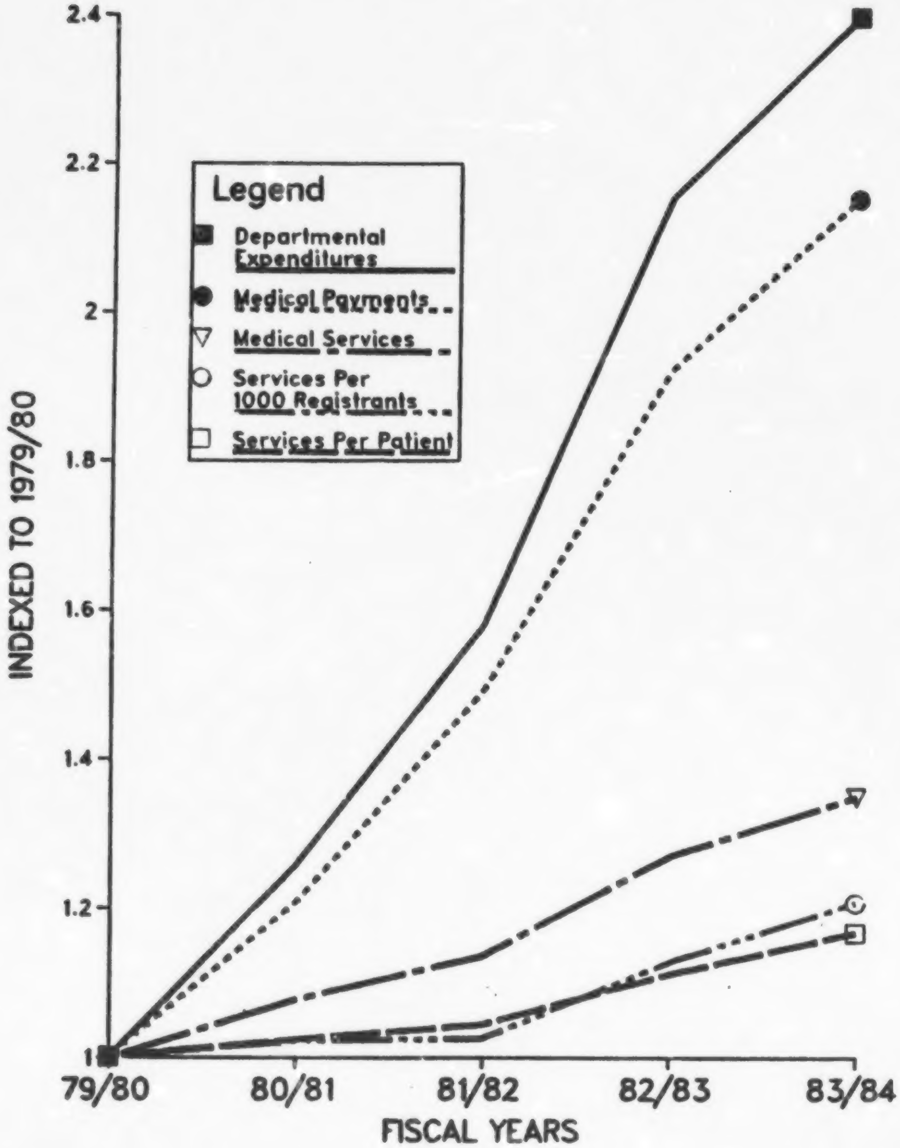
CANADIAN MEDICAL PAYMENTS PER 1000 POPULATION COMPARED TO ALBERTA MEDICAL PAYMENTS PER 1000 REGISTRANTS 1979/80 TO 1983/84



SOURCE: (a) Canadian – Health and Welfare Canada Report
(b) Alberta – Utilization Data Base – Date of Service
NOTE: Medical Payments exclude Lab, Xray and Miscellaneous Payments

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

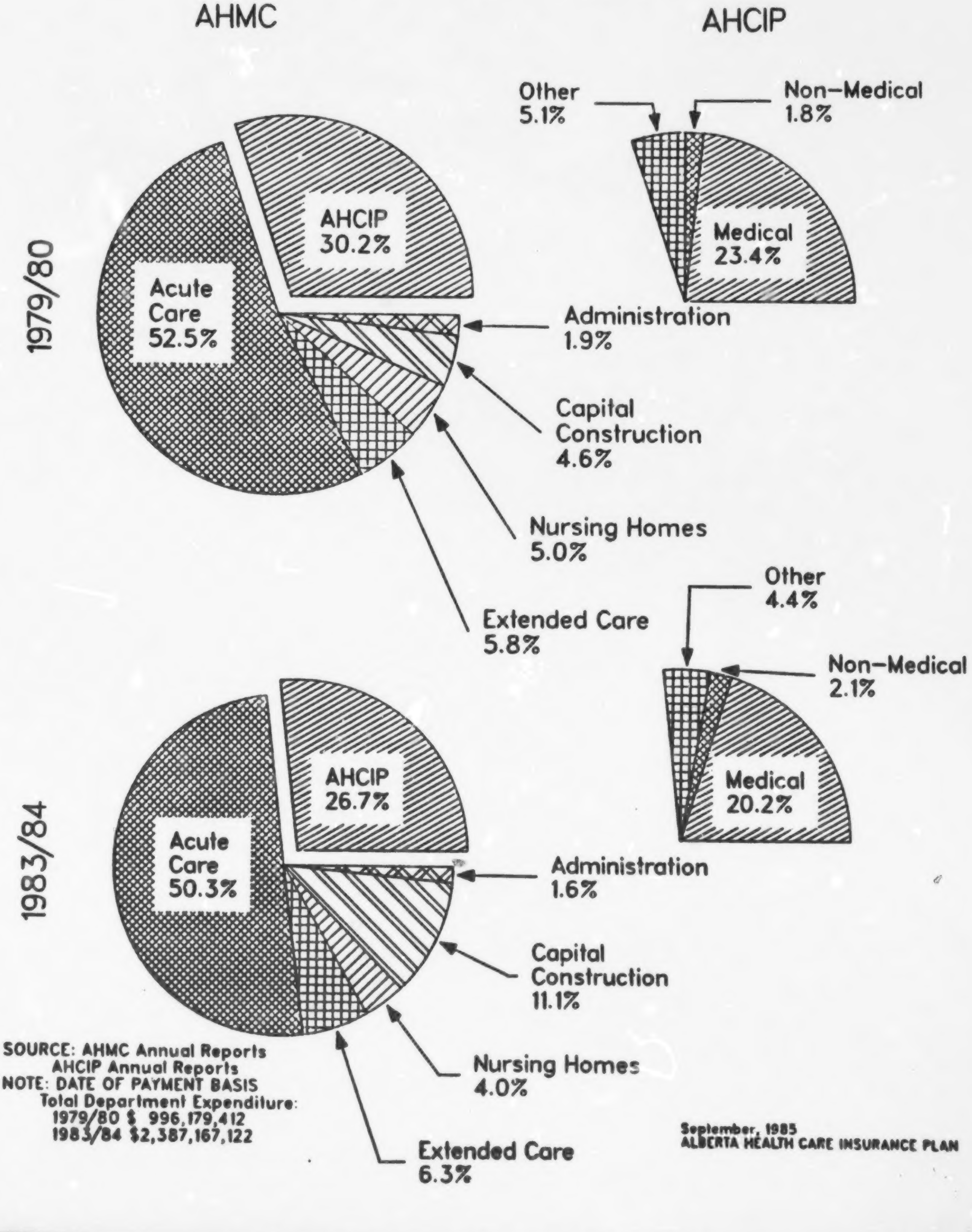
MEDICAL BENEFIT INDICATORS FROM 1979/80 TO 1983/84 (indexed to 1979/80)



SOURCE: Alberta Health Care Insurance Plan Annual Reports
NOTE: Date of Payment Basis

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

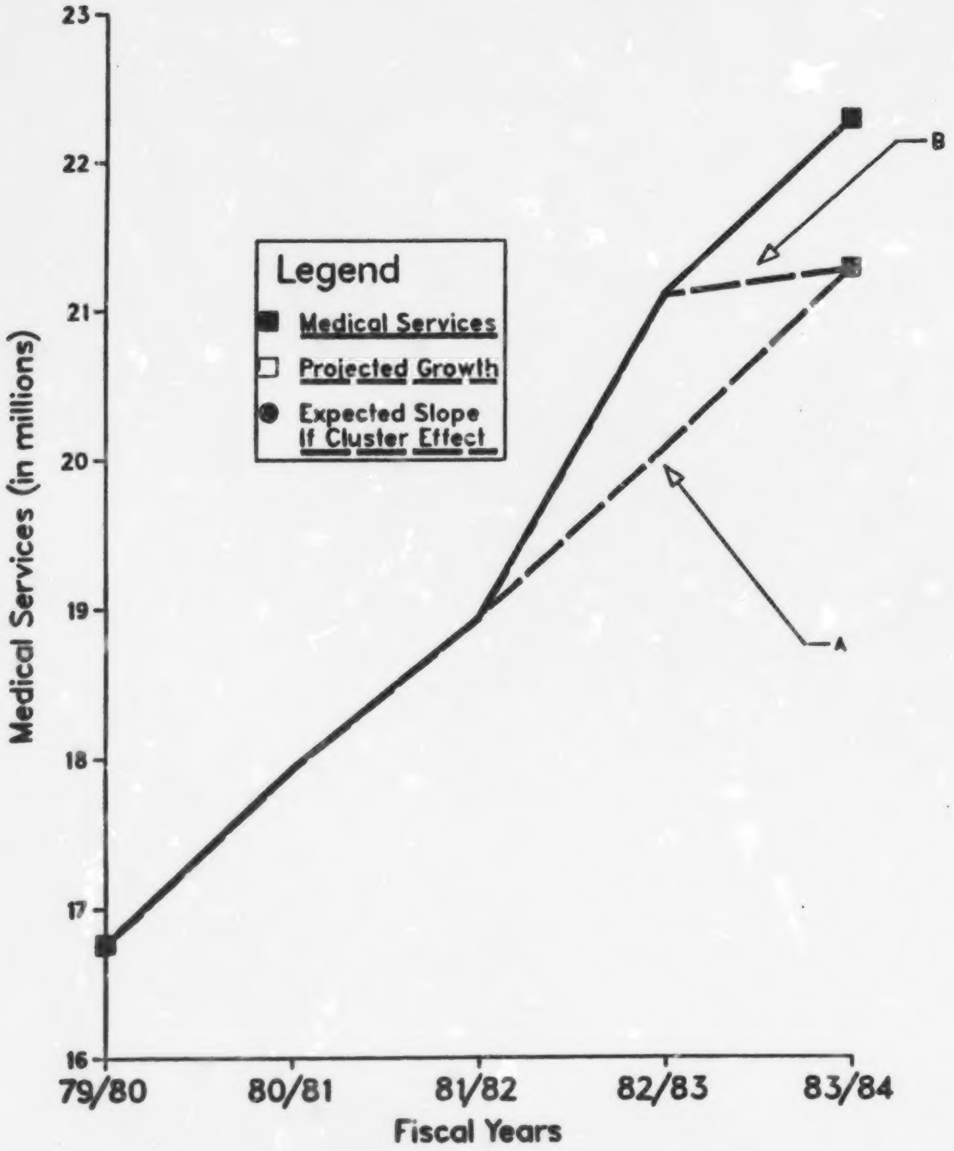
Expenditures for Hospitals and Health Care
1979/80 and 1983/84



SOURCE: AHMC Annual Reports
AHCIP Annual Reports
NOTE: DATE OF PAYMENT BASIS
Total Department Expenditure:
1979/80 $ 996,179,412
1983/84 $2,387,167,122

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

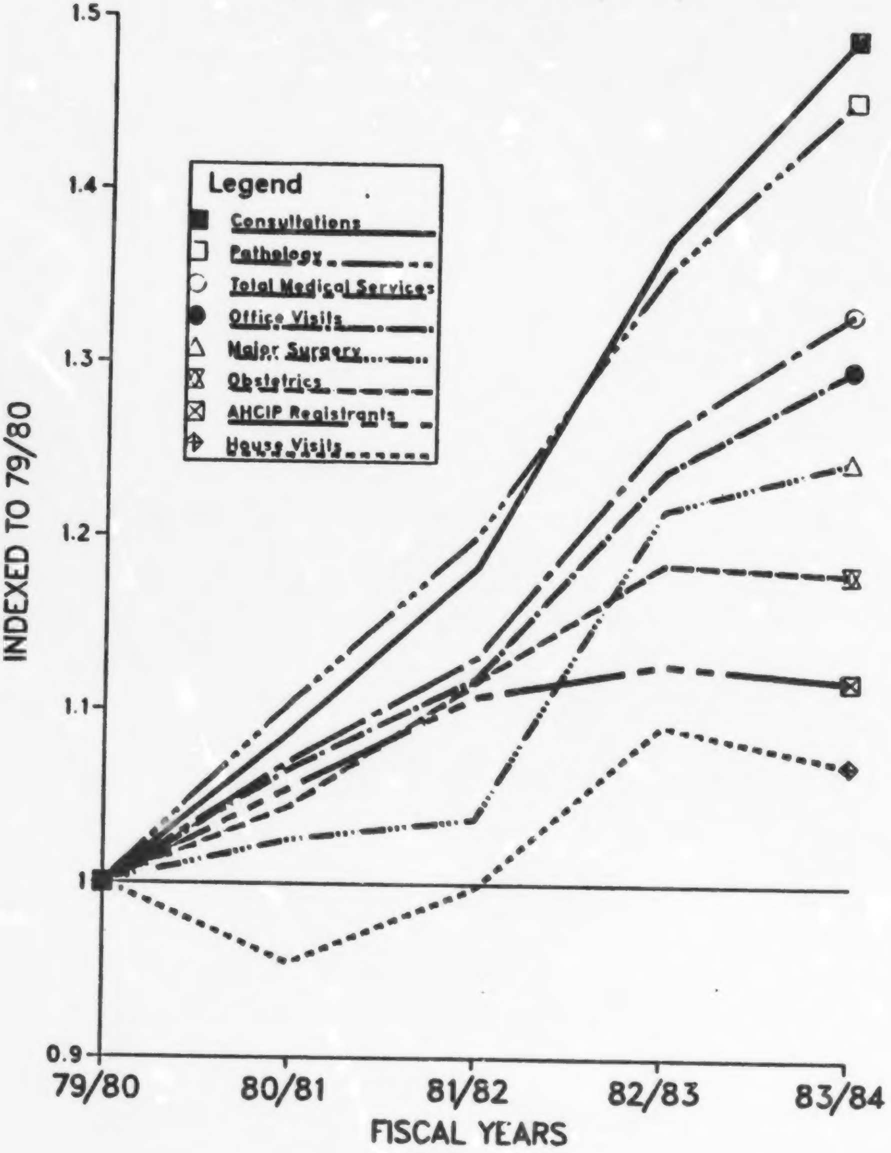
AHCIP MEDICAL SERVICES
1979/80 to 1983/84



SOURCE: Utilization Data Base
NOTES: DATE OF SERVICE BASIS
A. Projected increase without 1982/83 surge.
B. Expected slope if the increase in 1982/83 was due to a clustering of billings in this year only.

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

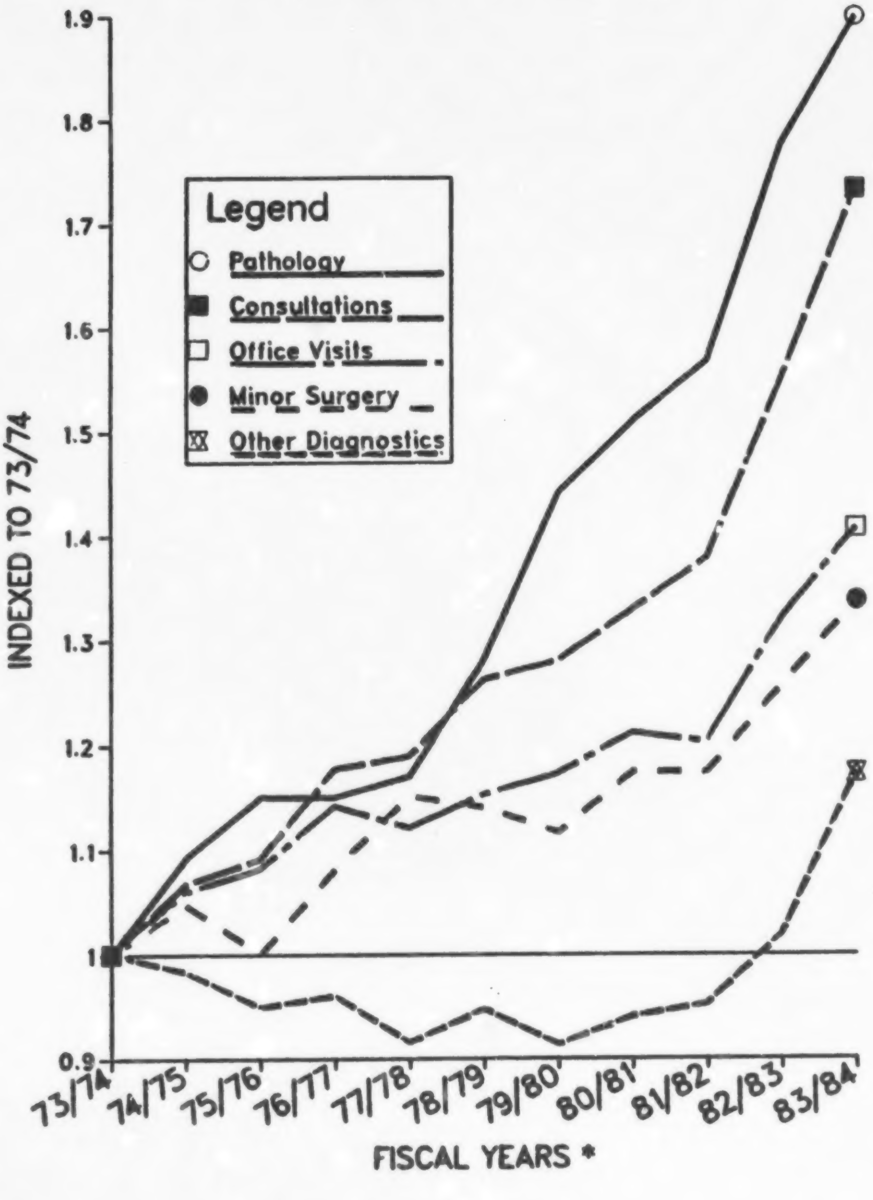
AHCIP MEDICAL SERVICES
Breakdown of Selected Types of Service
1979/80 to 1983/84
(indexed to 79/80)



SOURCE: Utilization Data Base
NOTE: DATE OF SERVICE BASIS

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

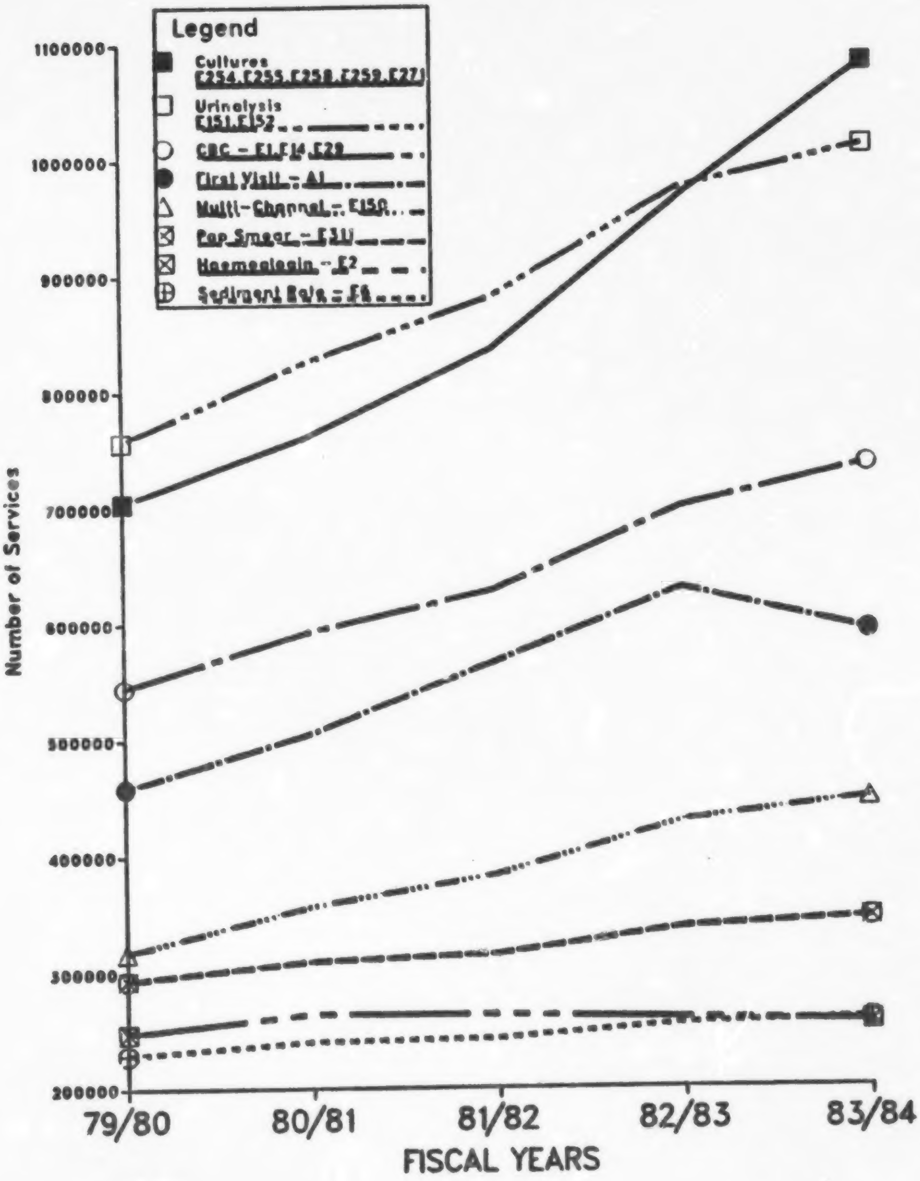
MEDICAL SERVICES PER 1000 REGISTRANTS
Breakdown of Selected Types of Service
1973/74 to 1983/84
(indexed to 73/74)



SOURCE: AHCIP 83/84 Annual Report – Table 2
NOTE: DATE OF PAYMENT BASIS
* Plan Year Prior to 77/78

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

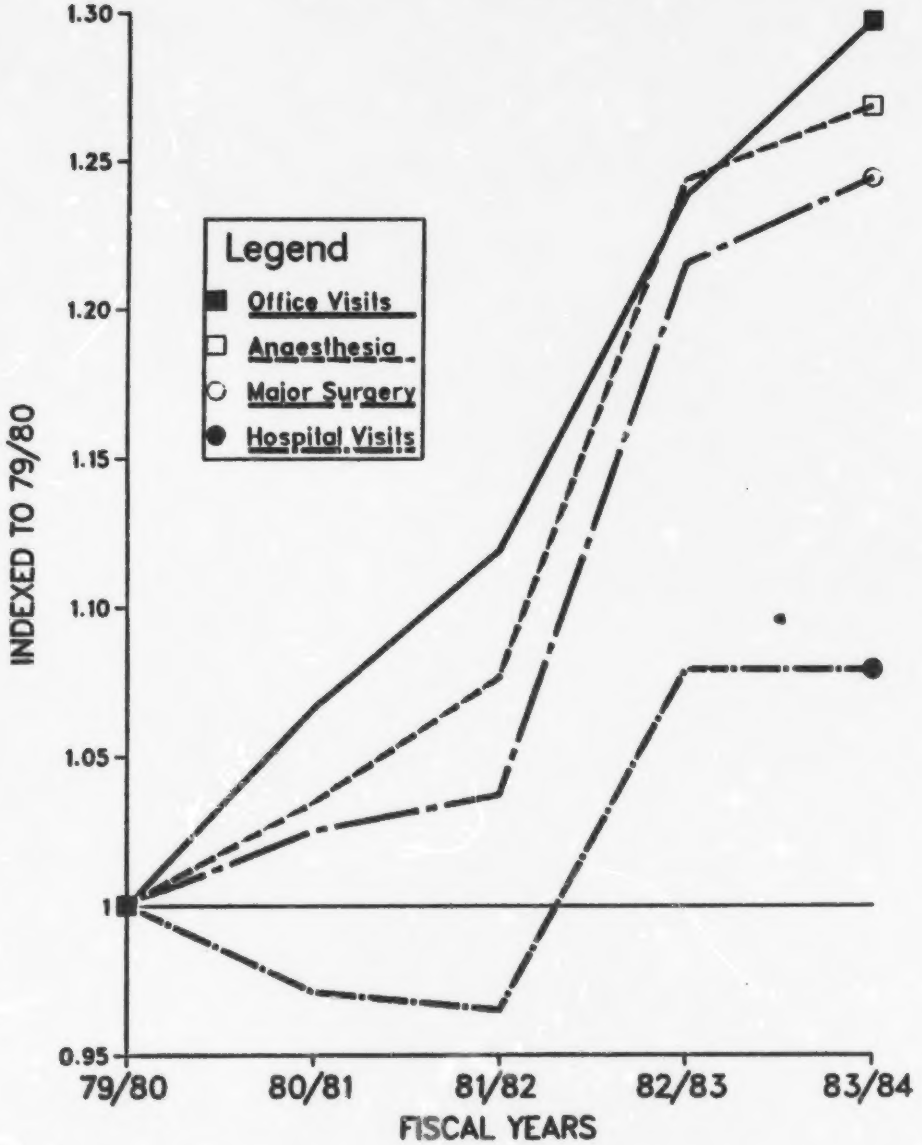
AHCIP PATHOLOGY SERVICES
Breakdown of Selected Analyses
1979/80 to 1983/84



SOURCE: Utilization Data Base
NOTE: DATE OF SERVICE BASIS

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

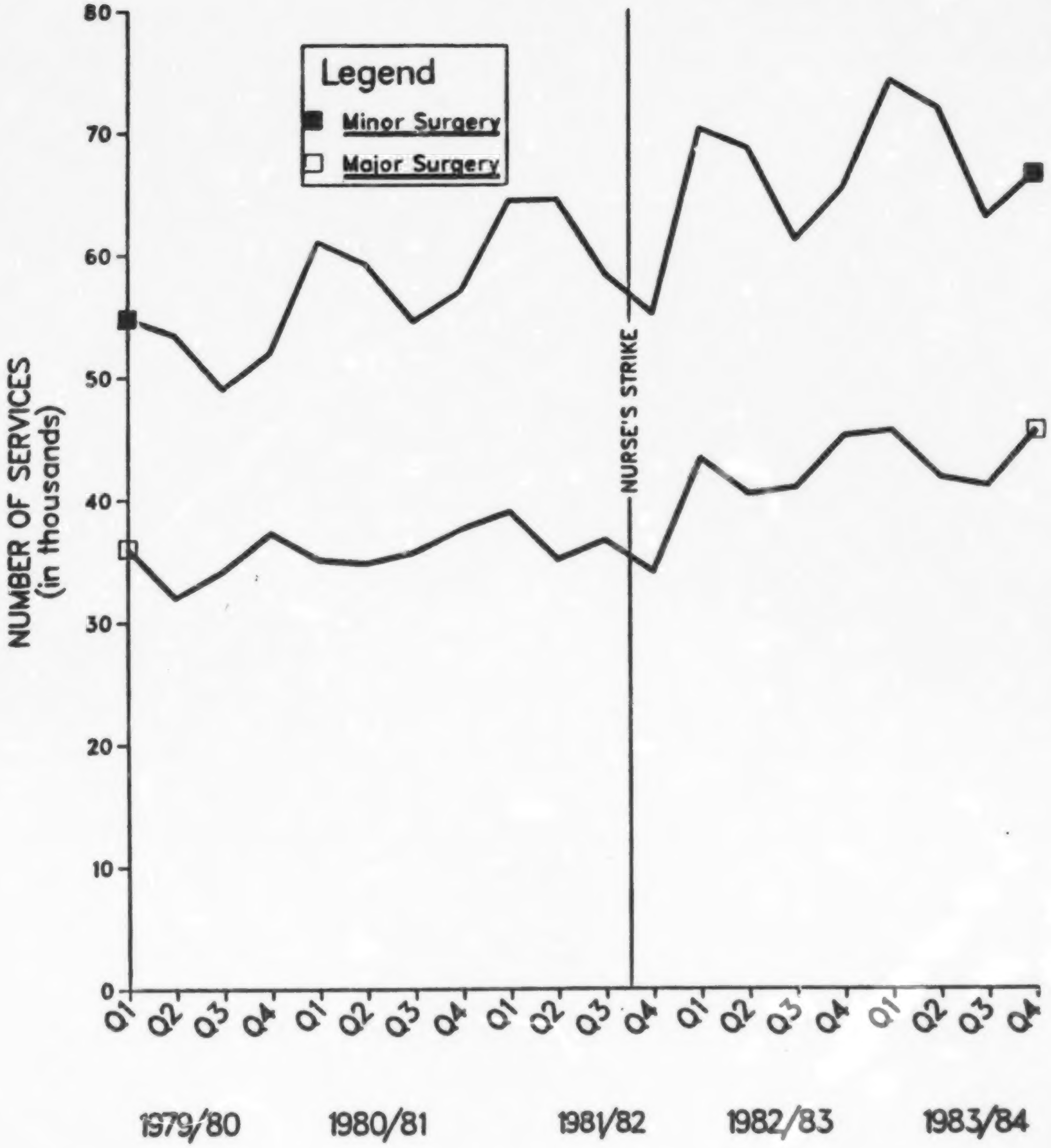
AHCIP MEDICAL SERVICES
Major Surgery and Comparable Categories
1979/80 to 1983/84
(indexed to 79/80)



SOURCE: Utilization Data Base
NOTE: DATE OF SERVICE BASIS

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

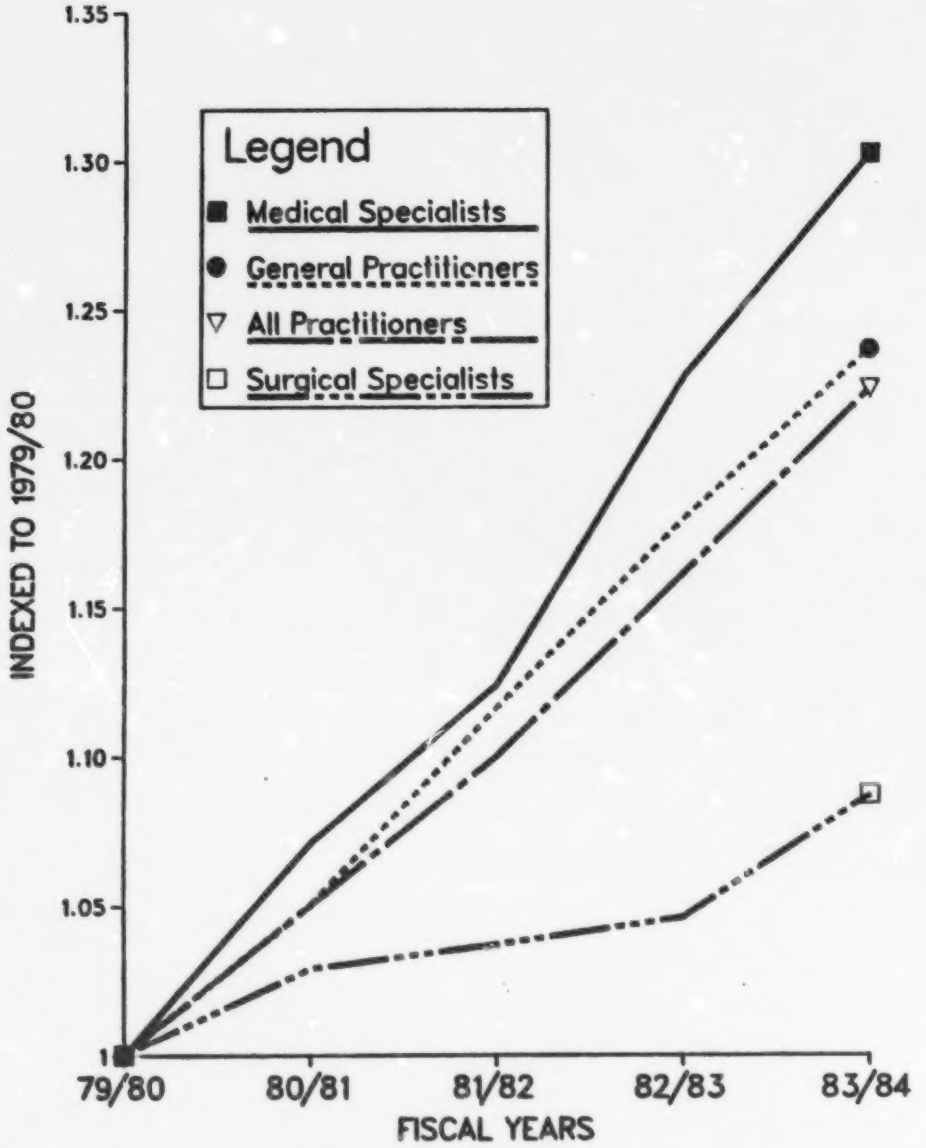
NUMBER OF SERVICES BY QUARTER MAJOR SURGERY and MINOR SURGERY FISCAL YEARS 1979/80 – 1983/84 Date of Service Basis



September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

SOURCE: Utilization Data Base – Date of Service

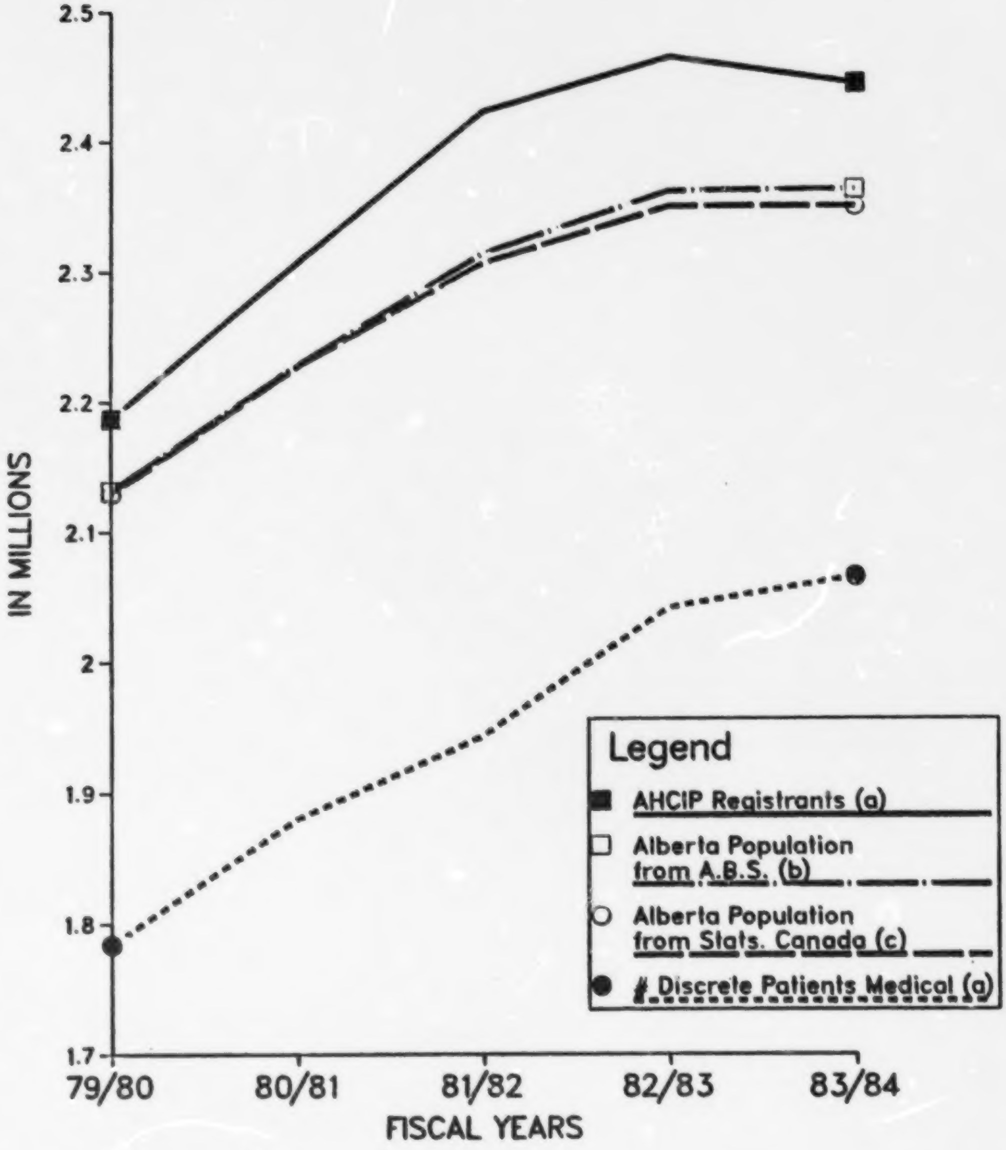
MEDICAL PRACTITIONERS BY SPECIALTY
1979/80 to 1983/84
(indexed to 1979/80)



SOURCE: Alberta Health Care Insurance Plan Annual Reports
NOTE: Date of Payment Basis

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

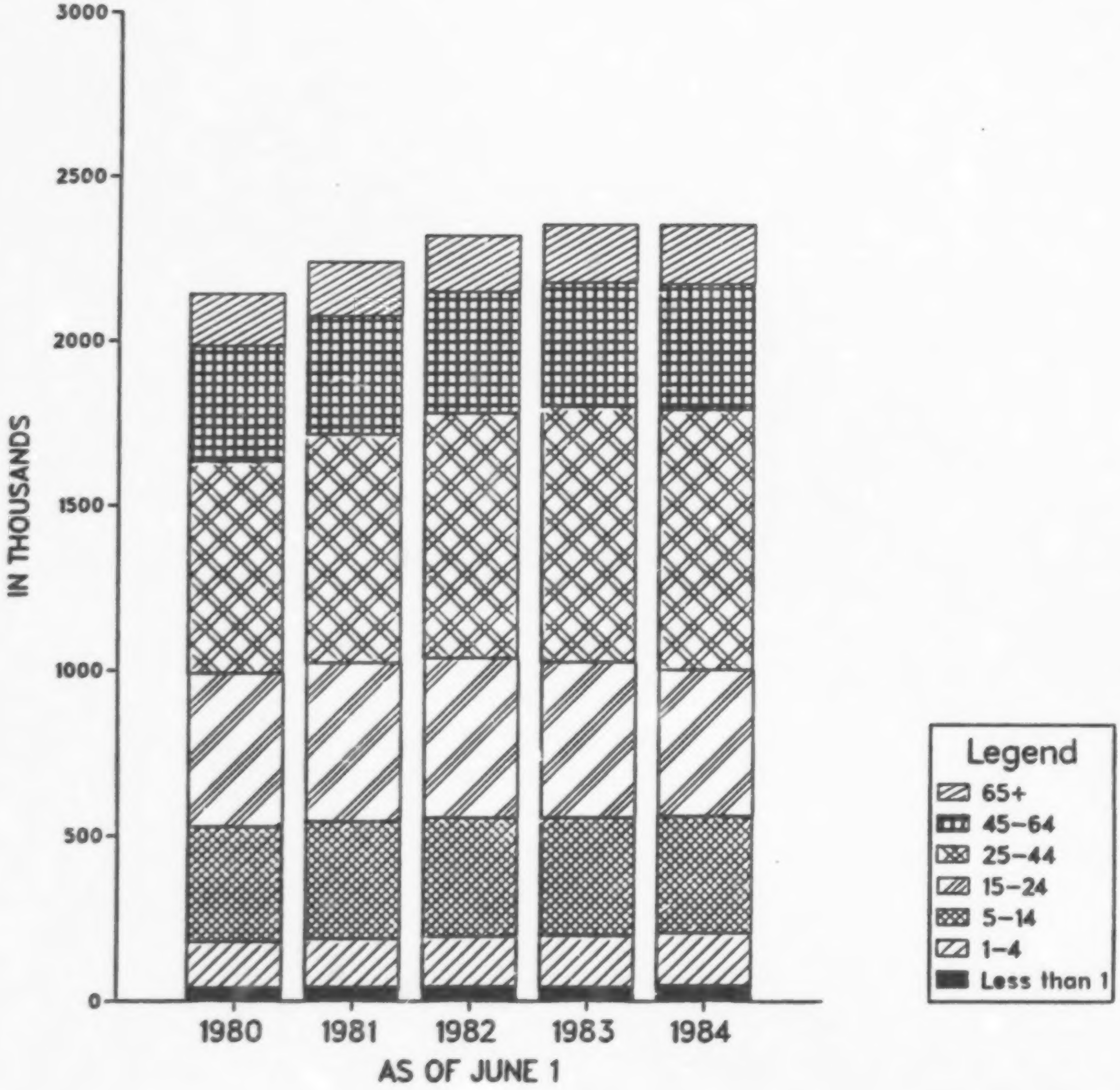
POPULATION DATA FOR FISCAL YEARS 1979/80 TO 1983/84



SOURCE:
(a) Alberta Health Care Insurance Plan Annual Reports
(b) Alberta Bureau of Statistics
(c) Statistics Canada

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

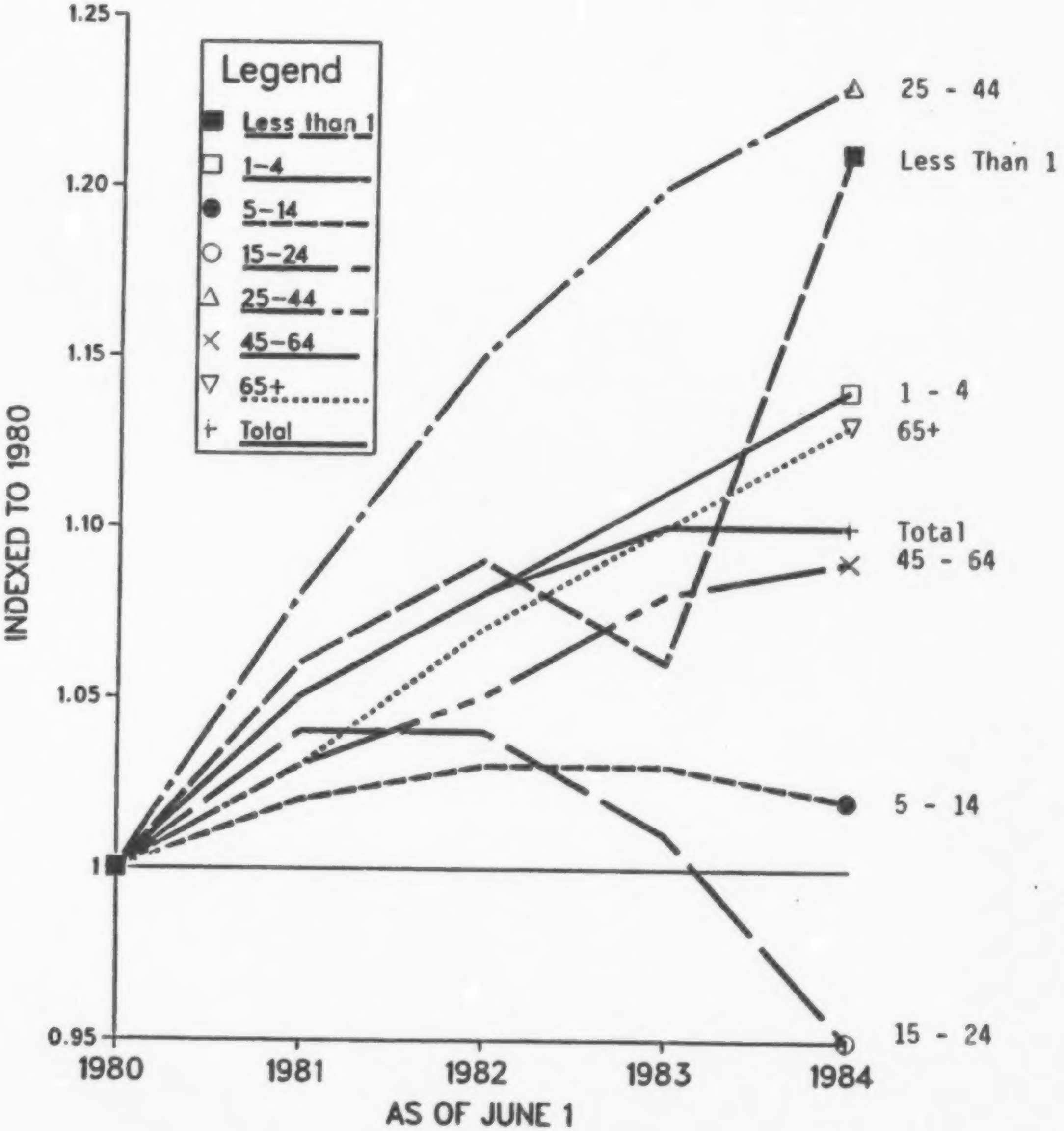
POPULATION BY AGE GROUP FOR YEARS 1980 TO 1984



SOURCE: STATISTICS CANADA

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

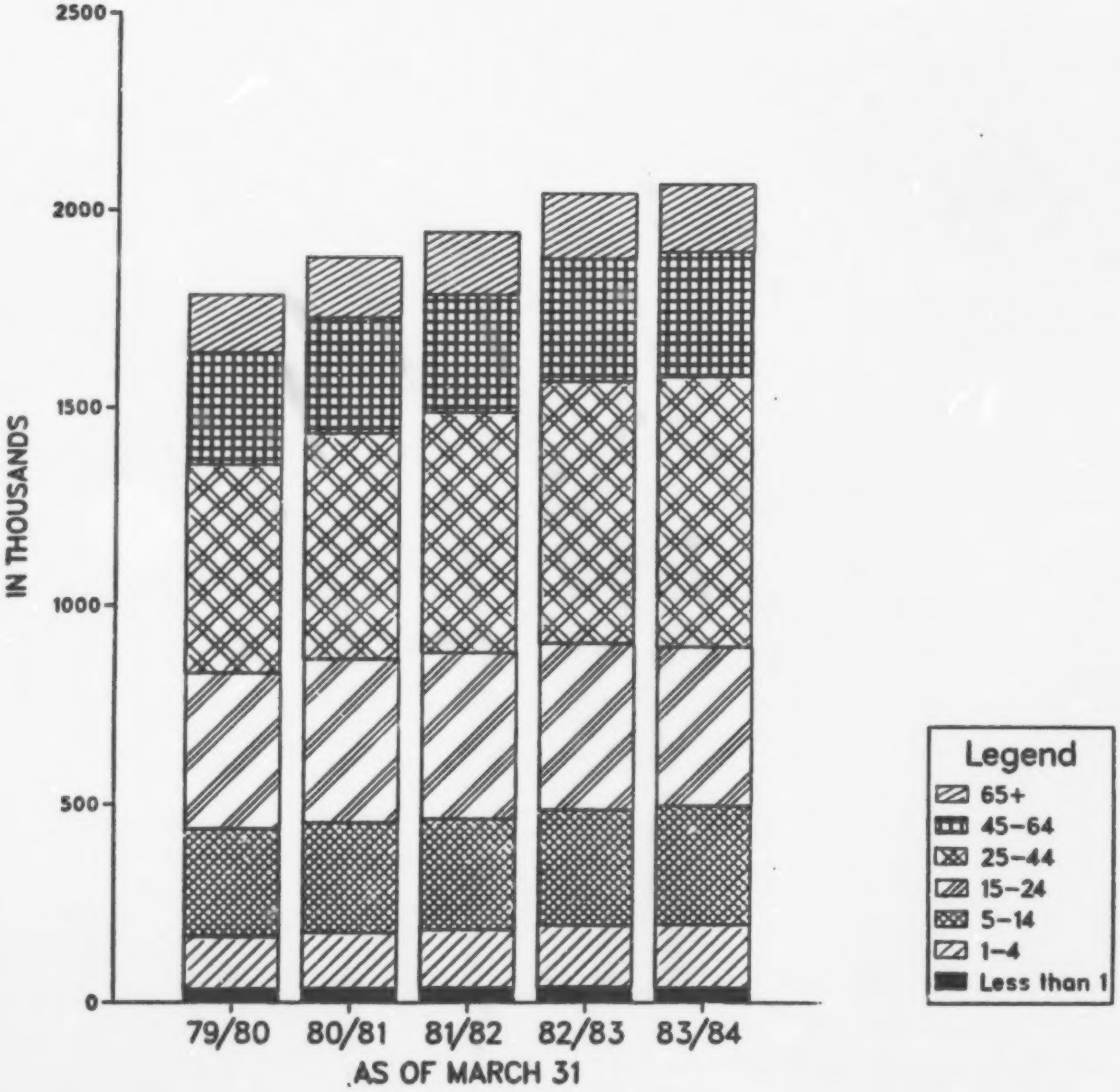
POPULATION BY AGE GROUP FOR YEARS 1980 TO 1984



SOURCE: STATISTICS CANADA

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

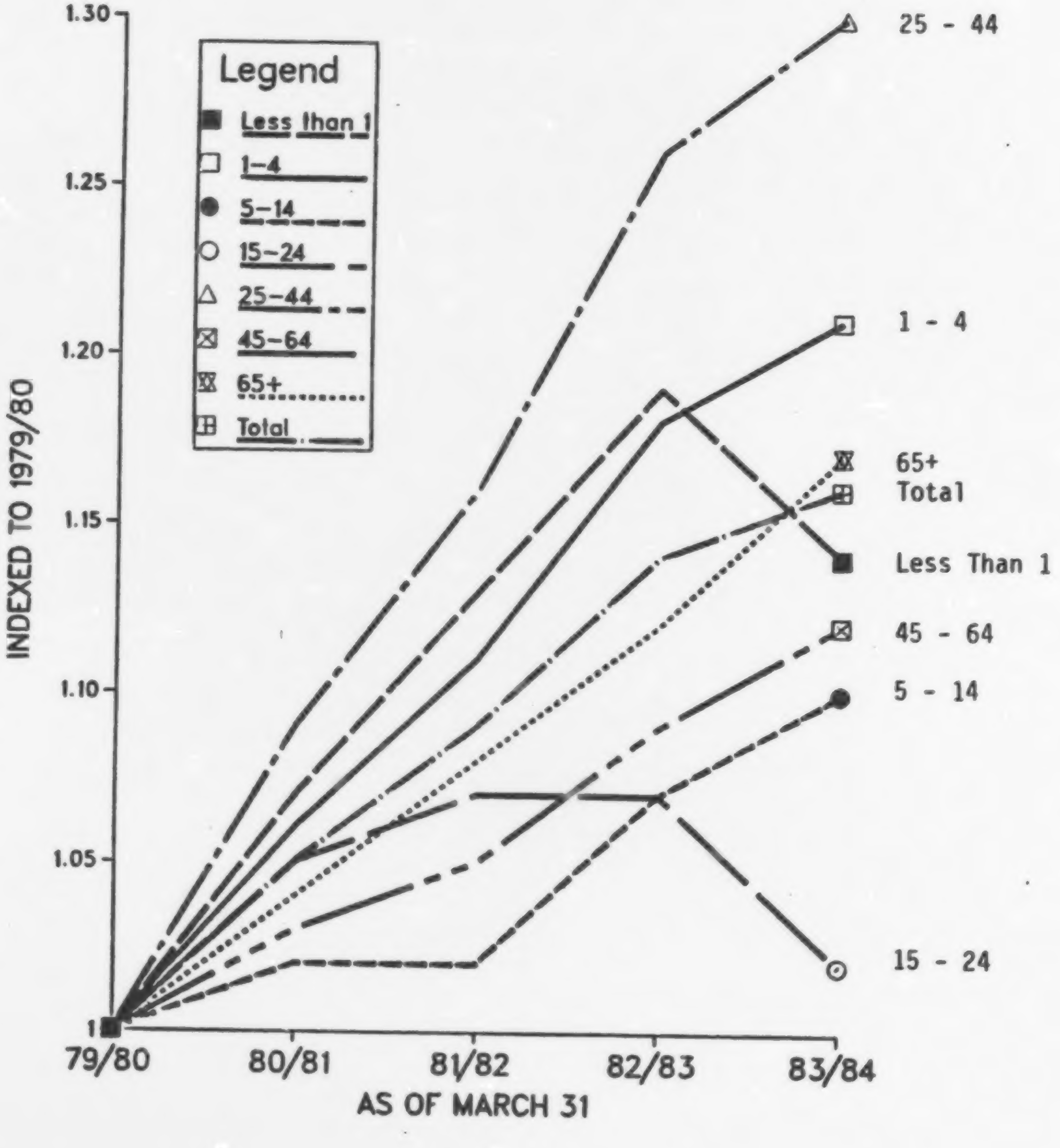
DISCRETE MEDICAL PATIENTS BY AGE GROUP FOR FISCAL YEARS 1979/80 TO 1983/84



SOURCE: Alberta Health Care Insurance Plan Annual Reports

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

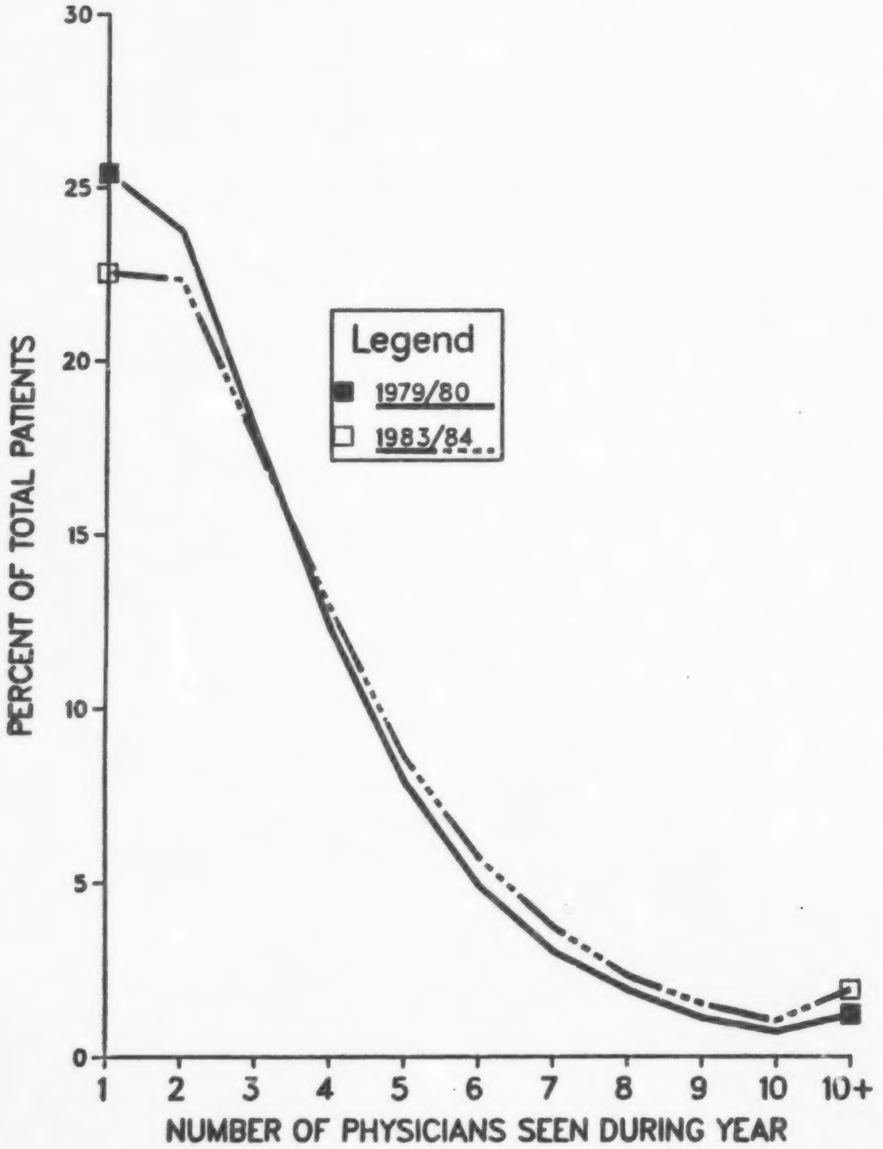
DISCRETE MEDICAL PATIENTS FOR FISCAL YEARS 1979/80 TO 1983/84



SOURCE:
ALBERTA HEALTH CARE INSURANCE PLAN ANNUAL REPORTS

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

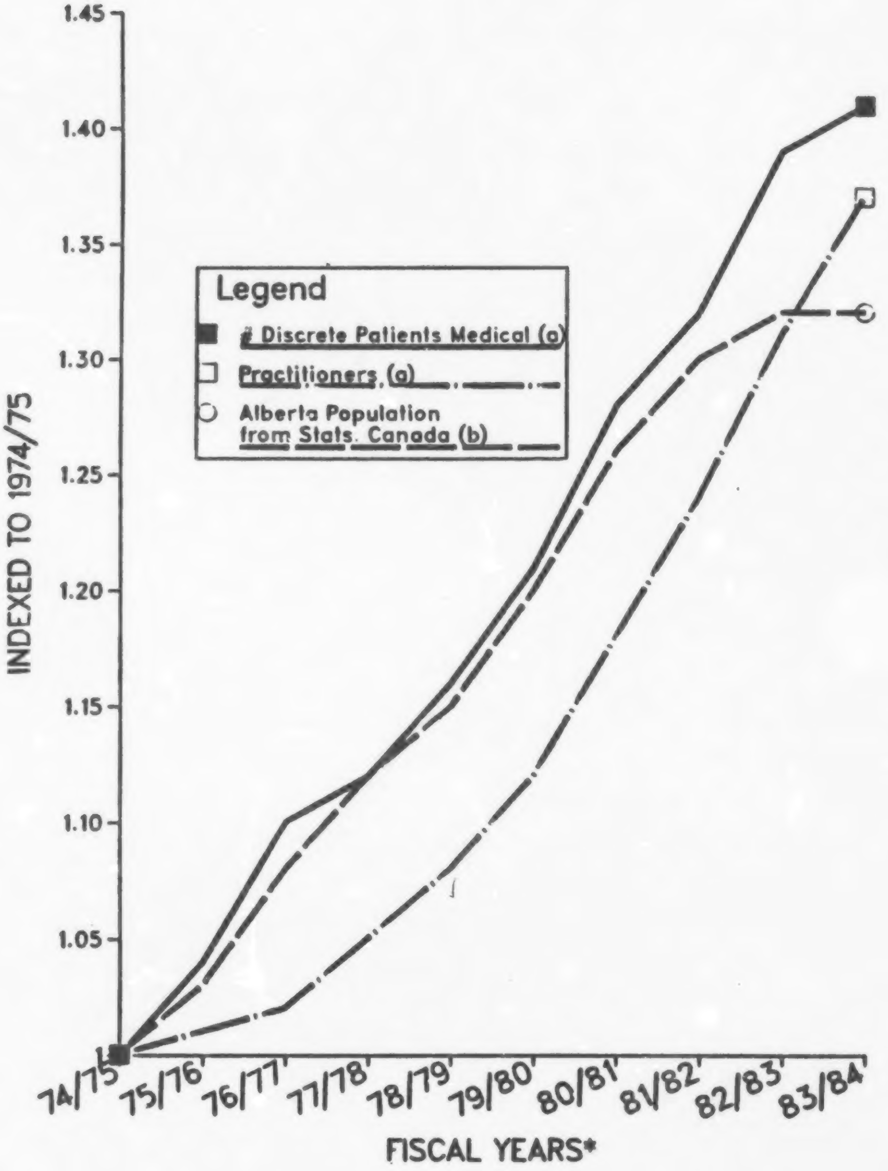
PROPORTION OF PATIENTS SEEING MORE THAN ONE PHYSICIAN DURING YEARS 1979/80 AND 1983/84



SOURCE:
ALBERTA HEALTH CARE INSURANCE PLAN
CLAIMS FILES
NOTE: DATE OF SERVICE BASIS

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

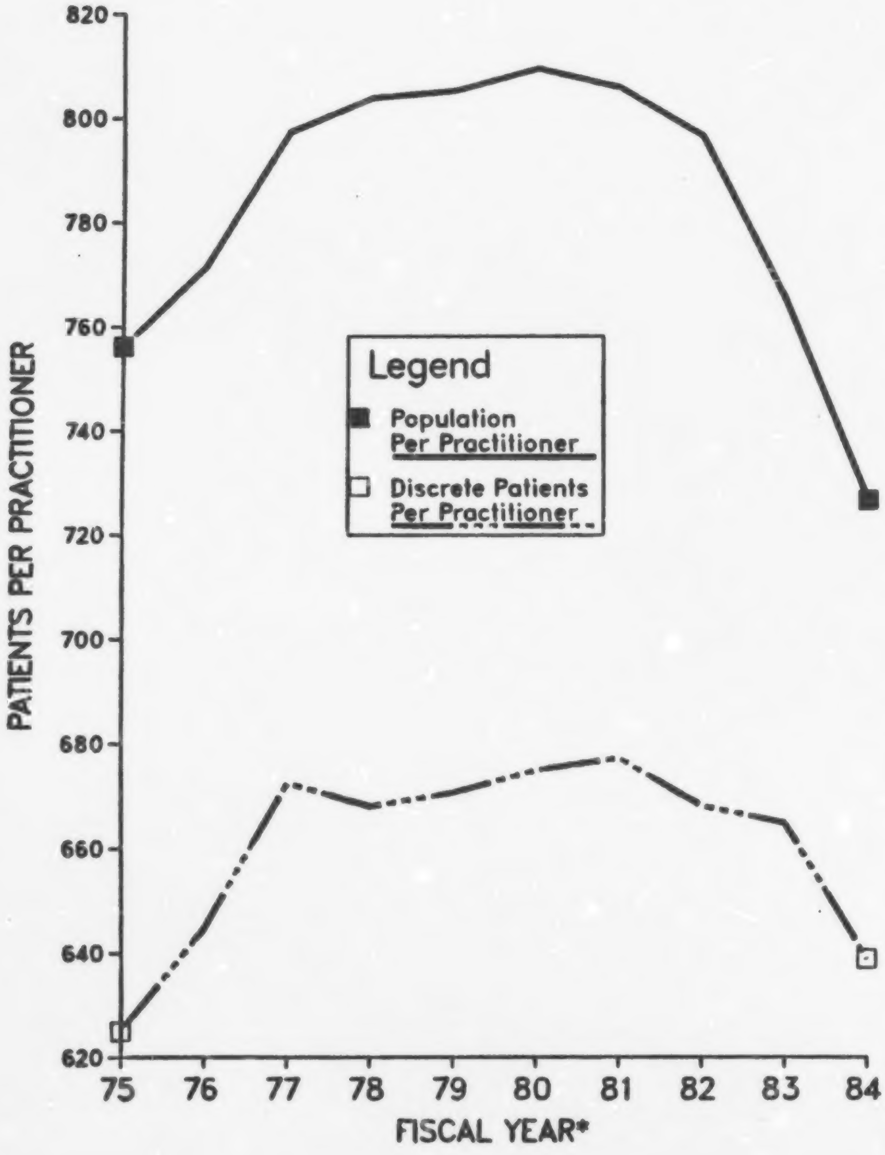
ALBERTA POPULATION AND AHCIP PHYSICIANS INDEXED TO 1974/75



SOURCE:
(a) Alberta Health Care Insurance Plan Annual Reports
Date of Payment
(b) Statistics Canada
*NOTE: Plan Year Prior to 1978

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

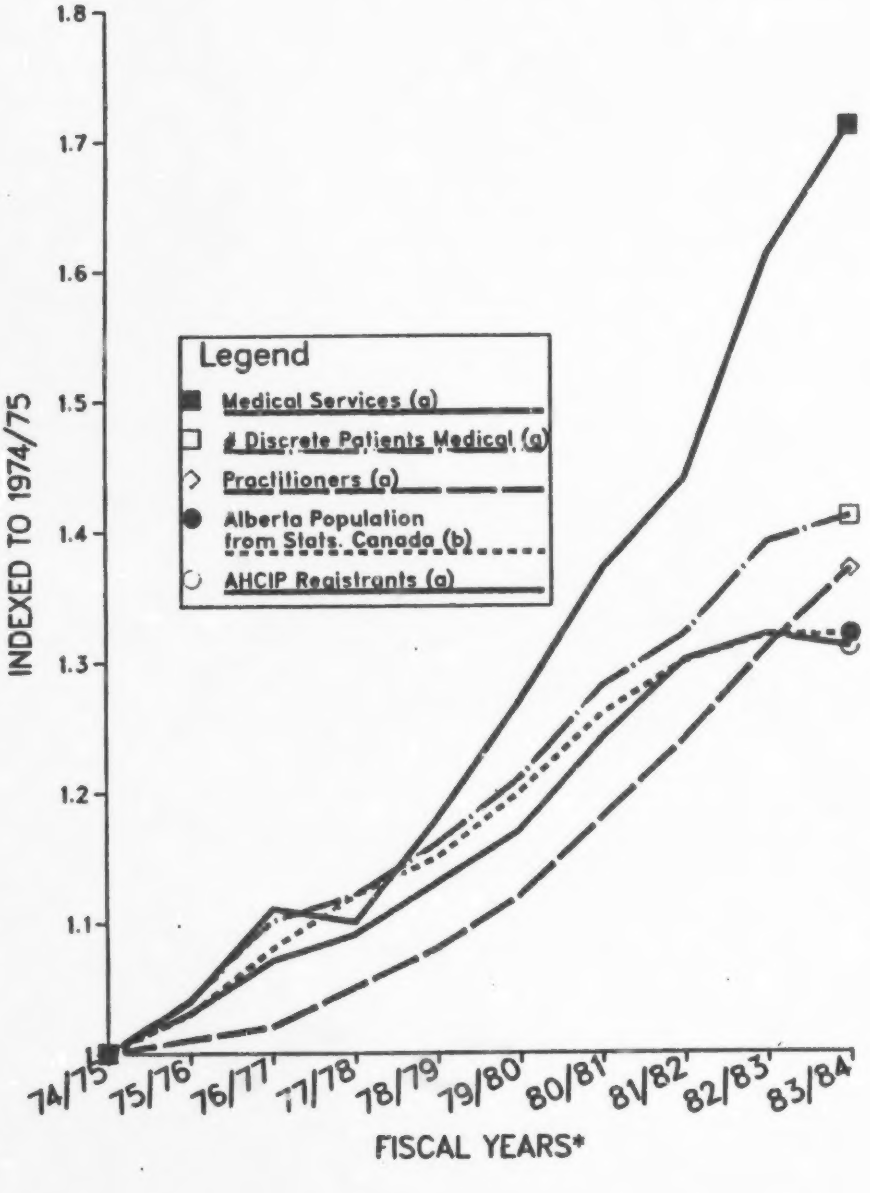
POPULATION PER PRACTITIONER
FISCAL YEARS 1974/75 TO 1983/84



SOURCE:
ALBERTA HEALTH CARE INSURANCE PLAN ANNUAL REPORTS
***NOTE: DATE OF SERVICE BASIS**

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

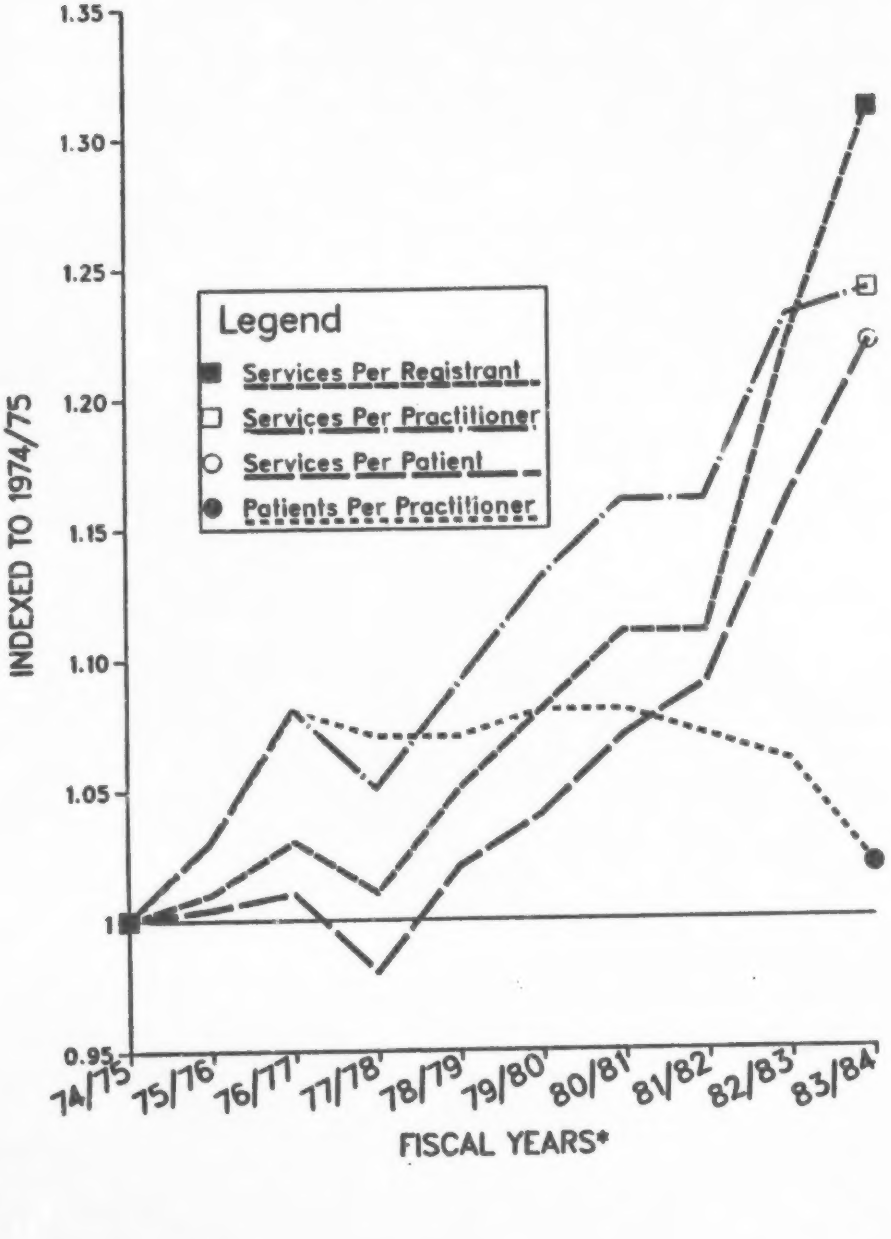
MEDICAL INDICATORS
INDEXED TO 1974/75



SOURCE:
(a) Alberta Health Care Insurance Plan Annual Reports
Date of Payment
(b) Statistics Canada
*NOTE: Plan Year Prior to 1978

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

UTILIZATION
INDEXED TO 1974/75



SOURCE:
Alberta Health Care Insurance Plan Annual Reports
Date of Payment
***NOTE: Plan Year Prior to 1978**

September, 1985
ALBERTA HEALTH CARE INSURANCE PLAN

FEE CODES REFERENCED IN REPORT

General Procedures

A 1	First visit, new illness, requiring complete history, physical, to include all major systems, and venepuncture when indicated
A 2	First visit, new illness, not requiring a complete work-up
A 4	Subsequent visits
A 26	Psychotherapy by non-psychiatrist, when appointment specifically made for this purpose.
A 27	Routine annual medical examination - requires complete history and physical
A 27A	Pre-marital examination and counselling
A 27B	Contraceptive counselling
A 27D	Senior citizen driver's examination - including completion of form (required after 69th birthday)
A 29	Hospital visit (see A29A and A29B)
A 29A	When specially called from home or office 5:00 p.m. To 11:00 p.m. - also Saturdays, Sundays and statutory holidays
A 29B	When specially called from home or office 11:00 p.m. To 8:00 a.m. - also Saturdays, Sundays and statutory holidays
A 30	When a physician is on rotation duty in out-patient department - 8:00 a.m. to 5:00 p.m.
A 31	When a physician is on rotation duty in out-patient department - 5:00 p.m. to 8:00 a.m. Also Saturdays, Sundays and statutory holidays
A 60	Major tray service
A 61	Minor tray service
A 70	Weekday, placed and made 5:00 p.m. to 11:00 p.m.
A 71	Saturday, Sunday or statutory holiday placed and made 8:00 a.m. to 11:00 p.m.
A 72	Night, placed and made 11:00 p.m. to 8:00 a.m.
A 80	Consultation required under Section 20 of the Alberta Hospital Act Regulations for sterilization, first Caesarean section, D & C, or hysterectomy for patients under age 40
B 34	Right heart catheterization, with fluoroscopy
B 34A	Left heart catheterization, with fluoroscopy

FEE CODES REFERENCED IN REPORT

General Procedures (continued)

B 87	Interpretation of pulmonary function tests involving lung volumes, diffusing capacities, mixing efficiency and alveolar CO2
B 88	Pulmonary function tests, flow volume loops, interpretation, initial
B 89	Pulmonary function tests, closing volumes, interpretation, initial
B401	Carbon monoxide diffusion capacity (at rest)
B438	Electrocardiogram (technical only)
B464A	Allergy skin testing of children under five years carried out by a physician
B464B	Conjunctival or inhalation test
B465	Desensitization treatments - per treatment (regardless of number of injections given), autogenous vaccines - when procedure performed by a physician

Laboratory and Pathology

E 1	Complete blood count (haemoglobin, white blood count, differential, and either red blood count or haematocrit, with no additional charge for indices) - by any method
E 2	Haemoglobin
E 6	Sedimentation rate - macro or micro
E 14	Complete blood count as in E-1 with check of blood smear by pathologist or haematologist
E 18	Foetal haemoglobin by denaturation or electrophoresis with pathologist's interpretation
E 19	Fragility test
E 23	Malaria or other parasite
E 29	Blood smear by special request of the referring physician for interpretation by pathologist or haematologist, not including blood count, with full written report
E 43	Prothrombin time
E 46	Thromboplastin time - partial
E 59	Amylase
E 68	Calcium
E 76	Chloride

FEE CODES REFERENCED IN REPORT

Laboratory and Pathology (continued)

E 77	Cholesterol total
E 81	CO2 content
E 84	Creatinine
E 92	Glucose
E 97A	Haemoglobin electrophoresis, together with quantitation of abnormal haemoglobin by scanning or elution
E 99	Immunoglobulin quantitation by immunodiffusion of IgG, IgA and IgM, inclusive
E103	Serum iron and iron binding capacity
E108	Lipoproteins by electrophoresis
E123	Phosphatase, alkaline or acid
E125	Phosphorus, inorganic
E127	Potassium (flame photometer)
E135	Salicylates
E137	Sodium (flame photometer)
E142	Triglyceride
E150	Multi-channel analysis
E151	Basic routine examination - including exam of centrifuged sediment
E152	Urinalysis without microscopic examination of centrifuged sediment
E248	Occult blood
E254	Three or less per organism
E255	Four or more per organism
E258	Culture, routine (including smears if necessary)
E259	Culture, where differential media, serological tests and biochemical reactions up to six tests for speciation of organism are used
E262	Microscopic examination only (e.g. anal swabs for parasites, hairs, scales, films)
E262A	Wet mount and/or hanging drop for Trichomonas
E263	Microscopic examination for parasites with concentration methods or smear for T.B.
E265	Trophozoites - amoeba in stool

FEE CODES REFERENCED IN REPORT

Laboratory and Pathology (continued)

E271	Urinary & other bacteria counts
E283	Serological tests for syphilis (S.T.S.) (Wasserman, V.D.R.L., Kahn)
E287	Antinuclear antibodies by fluorescence, screen
E311	Cytological smear
E322	Tissue, gross and microscopic examination with report
E350	Estimation of serum thyroid binding protein by T3 resin uptake; or serum total T4
E353	Serum total T4 corrected for abnormal thyroid binding protein
E401	Folic acid, serum
E401A	Folic acid, red cell
E411	Pregnancy test
E487	Plasma cortisol
E499	Hemagglutination inhibition test, e.g. rubella
E513	Radioimmunoassay
E516	Ethosuximide, quantitative
E516A	Diphenylhydantoin (phenytoin), quantitative
E516B	Phenobarbitone, quantitative
E516D	Primidone, quantitative
E516G	Others (specify)
E519	High density lipoprotein (HDL) cholesterol
E550	Digoxin
E550D	Ferritin
E550K	Human chorionic gonadotropin, beta sub-unit
E550T	Thyroid stimulating hormone (T.S.H.)
E550U	T-4 (thyroxine)
E550W	Total T-3 (tri-iodothyronine)
E551A	Vitamin B-12 (serum)
E551B	Folic Acid (serum)

FEE CODES REFERENCED IN REPORT

Obstetrics

G 5	Therapeutic - vaginal - by any method
G 9	Including routine prenatal visits with Rh, post-natal care, all minor obstetrical complications
G 9F	As G-9, intravenous pitocin induction, physician monitored, additional fee to a maximum for each pregnancy
G 11	Consultation followed by delivery by consultant
G 11A	Transfer for delivery (uncomplicated)
G 13	Caesarean section - total care

Gynaecology

H 35	D & C with or without biopsy or removal of polyp
H 61	Sterilization by laparotomy, laparoscopy or colpotomy

General Surgery

K 1	Formal major consultation to include complete history, examination, review of x-ray and laboratory findings and a written report
K242	Biopsy, skin or mucosa, incisional or excisional
K242A	Biopsy, skin or mucosa, face, excisional
K247	Colonoscopy
K248	Occult blood
K250	Gastroscopy
K266	Removal by excision, first lesion
K266A	Each additional lesion
K266B	Removal by fulguration, first lesion
K266D	Each additional lesion
K266E	Non-surgical treatment (cryotherapy, chemotherapy, etc.), first lesion, per visit
K266F	Each additional lesion, per visit
K269	Pigmented benign naevus - excluding face - removal by excision or fulguration
K270	Pigmented benign naevus of the face - removal by excision or fulguration

FEE CODES REFERENCED IN REPORT

General Surgery (continued)

K271	Pigmented benign naevi, multiple - removal by excision or fulguration
K272	Plantar wart - removal by excision or fulguration, first plantar wart
K273	Each additional plantar wart
K287	Sebaceous - removal
K292	Minor (5 centimeters or less, involving only skin and subcutaneous tissue, excluding face
K293	Major (assessment to include site, size, involve- ment of other structures and time)
K296	Dermoids, lipomas and other minor soft tissue tumors

Orthopaedic surgery

L 1	Formal major consultation to include complete history, examination, review of x-ray and laboratory findings and a written report

Opthalmology

P 1	Formal major consultation, including complete history, examination, review of x-ray and laboratory findings and a written report
P 83A	Cataract extraction with intraocular lens implant

Plastic Surgery

Q 1	Formal major consultation including complete history, examination, review of x-ray and laboratory findings and a written report

Medicine

R 1	Formal major consultation to include complete history, complete physical examination, review of x-ray and laboratory findings and a written report
R 20	Repeat office visit - referred cases only

Pediatrics

T 1	Formal major consultation to include complete history, complete physical examination, review of x-ray and laboratory findings and a written report

FEE CODES REFERENCED IN REPORT

Pediatrics (continued)

T 20	Repeat office visit - referred cases only

Dermatology

U 1	Formal major consultation to include complete history, examination, review of x-ray and laboratory findings and a written report

Physical Medicine and Rehabilitation

V 1	Formal major consultation to include complete history, complete physical examination, review of x-ray and laboratory findings and a written report
V602	First visit, new illness, not requiring a complete work-up

Diagnostic Radiology

W 21	Chest - multiple views
W 43	Knee
W 43A	- additional benefit
W 43B	- both views, additional benefit
X 27	Mammography (both breasts)
X 44	Arthrogram - any lower extremity joint
X 54	Sacro-iliac joints
X 54A	- unilateral
X 54B	- bilateral
X 86	Colon (with fluoroscopy and films)
X 87	Colon (with fluoroscopy and films) combined with air contrast examination
X 88	Colon - separate air contrast (fluoroscopy and films)
X 88A	Barium enema for the reduction of intussusception
X 89	Cholecystography (includes repeat examinations on following day if necessary)
X 90	Cholecystography with fluoroscopy
X 91	Continuing cholecystography, four day gall bladder test
X151	Liver scan

FEE CODES REFERENCED IN REPORT

Diagnostic Radiology (continued)

X151A	Combined liver and spleen scan
X151B	Dynamic liver and/or spleen scan including static views
X157	Bone scan
X166	Dynamic brain studies (including static views)
X222	Echography, scan B-mode,
X223	Limited, e.g. follow-up or limited study
X225	Gall bladder
X225	Echography, scan B-mode hepatic
X226	Renal
X235	Echography, scan B-mode, pregnancy diagnosis
X236	Fetal age determination (biparietal diameter)
X237	Fetal growth rate (series of X-236)
X238	Placenta localization
X239	pregnancy, complete (X-235, X-236 and X-238 combined)
X240	Molar pregnancy diagnosis
X241	Ectopic pregnancy diagnosis
X242	Intra-uterine contraceptive device (I.U.C.D.)
X243	Pelvic mass diagnosis
X248	Echography for placement of radiation therapy fields, scan B-mode

Neurology

Z 1	Formal major consultation to include complete history, complete physical examination, review of x-ray and laboratory findings and a written report